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SOUTHWESTERN MEDICINE

VOLUME VIII FEBRUARY, 1924 No. 2

Official Organ of the New Mexico Medical Society, Arizona State Medical Association, El Paso County (Texas) Medical Society and the Medical and Surgical Association of the Southwest

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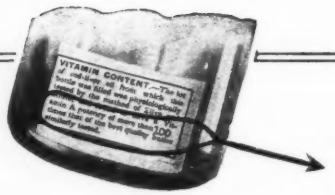

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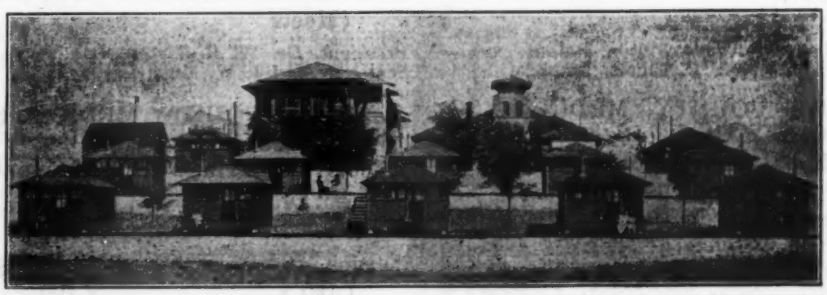

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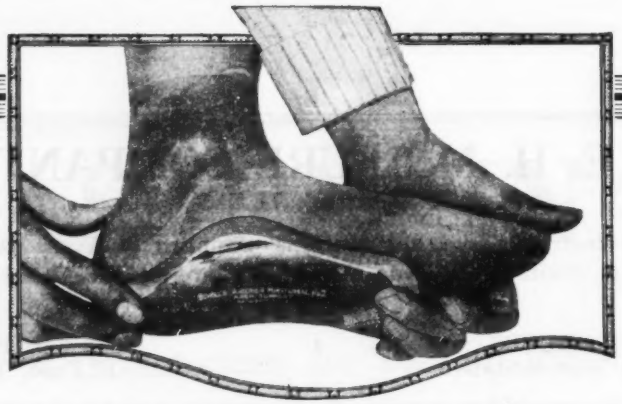

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THE HEART IN TUBERCULOSIS*

H. S. BENNETT, A. B., M. D., Fort Bayard, New Mexico.

No infectious process exists in the physical organism without its effect upon the spring of life. No component part of the physical organism can retain its normal tonus without the continuance of normal stimuli. All endogenous stimuli are dependent upon a healthy blood stream, and the blood stream reacts upon its propulsive organ—the heart, the very body of which it must feed to preserve its own life and life-giving properties. The inherent life of the blood is in the air we breathe and its demands are exacted to the fraction of a cubic meter under threat of disfunction and disassociation. The compensating forces of the body are busy, but they, too, are dependent upon the blood and exact their toll for overtax upon the heart, the heart upon the blood, the blood upon the air, and the air upon the lungs. And thus the cycle of interdependence, interrelation, association and contribution makes for balance or imbalance, strength or weakness, health or disease.

There is a singular paucity in medical literature regarding the heart and its action under the stress and drain of tuberculosis, and those of us who deal, day after day, with the symptoms complex of this disease as its affects the cardiovascular system fain cry out, in Hamletesque: "The thing is out of whack; O, woeful plight that all unaided I must set it right!" It is, however, a subject for very serious consideration and one from which a problem solved will be a step in advance, and redound to the honor of the profession.

For the purposes of this paper, the name "tuberculosis" will be used to mean pulmonary tuberculosis, and the word "heart" to embrace both that organ and its functions. My observations, through years of clinical study, and professional work in diseases of the intrathoracic organs, are offered to you as tentative conclusions based upon tangible and ocular evidence and those physical signs upon which one must, in a measure, place the veneer of his own interpretation—granting well-proven fundamentals as indisputable. They are offered to you honestly and in all earnestness, seeking your free and kindly criticism, courting equally your approval or disapproval, put forth, perhaps, in a selfish hope that I may receive, and, through me, the patients under my care, the benefits of your discussion.

Let us, if you please, visualize the normal heart within the thoracic cavity as it lies, obliquely placed, within its pericardial sac, behind the lower two-thirds of the sternum. Its apex is seen resting upon the diaphragm at the level of the fifth left intercostal space and the eighth dorsal vertebra, and its base extending from the lower border of the second left costal cartilage to the upper border of the third

(*Read by invitation before the Medical and Surgical Association of the Southwest at its Ninth Annual Session, El Paso, Texax, December 13, 1923.

right costal cartilage and at the level of the fifth dorsal vertebra, two-thirds of its bulk being to the left of the mid-sternal line. Behind the sternum, and at the level of the third costal cartilage, the aorta rises from the left ventricle and extends half way up the manubrium, approaching nearest the anterior surface of the chest at the level of the second right costal cartilage and reaches the spine at the level of the fourth dorsal vertebra. Its valve lies behind the third left costosternal junction and is one-fourth overlapped by the pulmonary valve, which lies slightly higher and to the left. The mitral valve is seen lying behind the third intercostal space one inch to the left of the sternum, while the tricuspid lies below and slightly to the left of a line drawn from the inner end of the third left to the sixth right costal cartilages. Anatomically, the aorta, mitral and tricuspid valves are contiguous structures, the mitral being the farthest from and the pulmonic the nearest to the anterior chest wall. The bifurcation of the pulmonary artery may be seen at the level of the fourth dorsal vertebra. Viewed from in front, only the tip of the left ventricle can be seen, the body of the right heart only being in evidence. With the exception of a small triangle of anterior area, the heart is covered by subadjacent and overlying lung tissue and the mediastinal walls.

Immediately contiguous and packed in cellular tissue behind the sternum lie the greatest aggregation of vital organs and viscera to be found in any given space in the human body. The roots of the lungs, including the pulmonary vessels and bronchi, with their primary divisions, and the anterior and posterior pulmonary plexuses; the trachea and its bifurcation with the main bronchi; the remnant of the thymus gland; the arch of the aorta and its descending portion with the innominate and the beginning of the left carotid and subclavian arteries; the bronchial arteries, the superior vena cava, the innominate and azygos veins, and the termination of the inferior vena cava within the pericardium before it enters the right auricle; the pneumogastric nerves with the left recurrent laryngeal and cardiac branches, the phrenic and splanchnic nerves and the cardiac plexuses; the esophagus; the thoracic duct, and complete sets of particular lymphatic glands.

Arising from the aorta, just after it passes from the heart, are the coronary arteries terminating in the great coronary vein which empties into the right auricle of the heart, and accompanying these coronary vessels are the lymphatics of the heart, those of the left heart terminating with the lymphatics of the left lung near the end of the thoracic duct, while those of the right heart terminate between the right subclavian and jugular veins.

As to the nerves, we are chiefly concerned with the eighth pair or pneumogastric, and of that pair with but one of its two primary portions, namely, the true par vagum. This, as we know, gives off branches from which are formed the cardiac plexus, the pulmonary plexus, the esophageal plexus and the coronary plexus of the stomach. Soon, however, after entering the thorax it gives off the recurrent which, embracing the subclavian artery on the right side and the aorta on the left, passes behind these vessels, ascending to the posterior part of the larynx to be distributed to its muscles, and communicates with the great sympathetic, the cardiac plexus, the pulmonary plexus, etc.

The heart, in its functioning, is controlled by the central nervous system, even though this system does not originate it. Whether the auriculo-ventricular action is neurogenic or myogenic is not definitely known, but we do know that the sphygmic impulses are conducted over certain paths of modified muscles or bands which are the remains of the primitive cardiac tube. Keith, Flack and Tawara have described the nodal mechanism. Each pulsation normally starts in a small area of specialized tissue at the junction of the superior vena cava with the right auricle, and known as the sino-auricular node. This node de-

termines the rhythm of the entire heart. From the sino-auricular node the wave of excitation spreads over the auricles, causing contraction of these chambers, and passes on to a second node, situated in the right auricle near the mouth of the coronary sinus, and known as the auriculo-ventricular node. Here the impulse is delayed owing probably to the greater resistance to conduction offered by this tissue. This causative delay is largely responsible for the definite interval between the auricular and ventricular contractions. From the auriculo-ventricular node the impulse passes directly to the ventricles through the auriculo-ventricular bundle which, running along the top of the auriculo-ventricular septum, divides near the union of the posterior and median flaps of the aortic valve into two branches, one to the left ventricle and the other to the right, each branch then subdividing into numerous fibres—the so-called fibres of Purkinje. If for any reason the sino-auricular node fails to excite impulses, or the waves of excitation are not sufficiently strong to reach their normal destination, the auriculo-ventricular node or some other part of the conducting system of specialized fibres or tissue may set the pace. Thus the normal sinus rhythm may be supplanted by various forms of irregular rhythm. Similarly, alterations in the tonus of the modified muscular tissue of the ventricles may disturb the primary stimulus at its source.

Let us now consider briefly the morphology of the lungs in tuberculosis. Strictly a bacterial disease and introduced into the body by the tubercle bacillus, it is seldom unaccompanied by other types of bacteria. Although its beginnings in the body are unknown, its march is determined, insidious and steady. Having once reached the parenchyma of the lung, the destructive work of the tubercle bacillus and its multiplication are really delayed only by the tenacity of the entire physiological system. Certain factors later enter the field of defense, as we shall see. The initial changes are well described by Sims Woodhead:

"The first stage is an apical catarrh; that is, a congestion of the blood vessels of the mucous membrane, accompanied by a slight proliferation of the epithelial cells lining the air cells, with an increased pouring out of fluid and an emigration of a large number of white blood cells. This catarrhal change is noted in portions of the lung where expansion and contraction are weak or imperfect, as at the apices in adults or about the hili in children."

With the multiplication of bacilli and the breaking down of cellular tissue, small groups of tubercles form, coalesce and press outward their destruction. All structures within their path—alveoli, elastic tissue, peripheral veins, the malpygian vessels—are broken down, and either fibrous tissue is formed as a defense against further aggression or the inflammatory process advances with proliferation, caseation and necrosis. Areas of obliterated pulmonary tissue may become walled about by fibrosis, but other foci form, ulcerate and discharge their deadly virus. While the phagocytic forces of the body may destroy some bacilli, their greatest line of defense is in the formation of fibrous tissue. The fibrous walls of excavated lung tissue contain blood vessels, which, as a rule, become thrombosed and obliterated.

But this very process of healing and repair in the lung tissue is, if continued, working irreparable damage to the heart and circulation. This, with other effects in the lungs of the progress of the disease, bearing upon the cardio-vascular system, as have been indicated or inferred in the foregoing, may well be enumerated and discussed specifically, ad seriatim.

1. Diminishing of the air-bearing space.
2. Obliteration of peripheral veins.
3. Invasion and necrosis of arterial walls.
4. Resultant increase in production and release of carbon dioxide.
5. Thrombosis of pulmonary blood vessels.
6. Absorption and direct reception of the products of infection into the blood stream.

7. Inflammatory action upon nerve sheaths.

All of these structural changes have either their direct or indirect effect upon the organic heart.

The normal lungs have a constant vital capacity and a supplementary reserve proportional to the size of the thoracic cavity and the functional requirements of the entire physical organism for the production of oxygen. If the organic tissues are to maintain their tonus, the blood must not be robbed. If robbed, its nutritive properties are diminished and its containing muscular tissue suffers. The coronary circulation is the life of the myocardium and any deficiency in blood quality exacts its toll. The heart is by so much weakened.

Superimposed upon a weakened heart muscle is the additional burden of keeping up the circulation with a diminished blood supply, and in the right heart by impeded sphygmic pressure against the semilunar valve.

A still further strain is imposed upon both right and left ventricles by the obliteration of capillaries and destruction of arterioles, with frequent sclerosis if the wall is still intact. Back of the semilunars the pressure is carried to the cuspid valves, already strained by the weakened ventricular wall, and now not offset by an adequate auricular content.

As though this were not sufficient, the poisonous action of excess carbon dioxide strengthens the onslaught and still further vitiates the tissue anabolism.

Gradually yielding to decreased nourishment, the myocardium becomes, here and there, anemic, loses its elasticity and tonus, and a deposit of fibrin takes place. The density of such deposit determines the pressure upon the coronary vessels supplying that part, and if the pressure becomes sufficient the arterial wall becomes sclerotic and an atheroma exists the extent of which is only problematical.

If the deposit of fibrin, though great in extent, is on an area of unspecialized muscle, the noticeable effect may be slight; but if but a minimal extent of deposit be formed upon the highly specialized fibres, the circulation is markedly disturbed through arrythmic excitation.

While thrombosis of the pulmonary blood vessels is usually followed by their necrosis and obliteration, or by their rupture into a bronchus, with resultant hemorrhage, it occasionally happens that emboli split off to lodge either in a vessel elsewhere in the circulation or in one of the chambers of the heart, to attach themselves to the endocardial membrane or a valve leaflet, the beginning of a future stenosis. In either event a dangerous load is put upon the heart.

Considering the pathology and morphology in tuberculosis infection it is but natural that there should be a toxemia of varying degrees of intensity according to the type and advancement of the disease process. It may be safely asserted that no pyrexic nor fulminating type is without its mixed infection, and virulent strains of streptococci, staphylococci, B. influenzae and pneumococci are actively at work around all caseating foci. These microorganisms with minute toxic detritus find their way into the blood stream and eventually to the heart, where their inflammatory action attacks the endocardium with direful results.

Dana has said that inflammation, teleologically, is the reaction of the organism to an irritant; and whenever there is inflammation there is irritation. This microbic irritation of the productive type becomes, under a mixed infection, frequently the exudative or purulent type, and attacks with destructive force the very structure of the nerves on which the heart leans for functional support. The nervous system, however, is lord of the physical organism and will demand and receive, when all other structures are impoverished, its blood supply, and it is but rarely in tuberculosis that the heart denies its exactions while it continues to beat.

What then appears to be the disintegrating or disorganizing effect which can be taken as a direct causative factor in producing the symptom-

atology and morbid anatomy which we find in the cardiac mechanism of thousands of cases of pulmonary tuberculosis? I believe it is both physiological and neurological, and elements both psychic and somatic enter into its production.

We have been thinking of a variety of cardiac conditions all of which I have seen proven at the autopsy table. I have purposely not discussed extrapulmonary intrathoracic pathologies which are frequently responsible for cardiac dilitation and compensatory hypertrophy, such as extension of pleural inflammation to the pericardium; mechanical traction through negative pressure by a sound lung when its mate is diseased and compressed by intrapleural exudate or air, etc., although such complications exist in the course of pulmonary tuberculosis. Nor have I reviewed in detail the many endocardial conditions which are an inevitable concomitant of long continued myocardial abnormalities of pathologic etiology. The subject is of too great proportions to be practicable within the limits of this paper. We are dealing with uncomplicated pulmonary tuberculosis as an etiologic agent. Structural effects have been considered in both lungs and myocardium.

Bearing these in mind, we see the greatest strain placed upon the right ventricle. Deterioration of blood quality, and vitiation by exogenous toxins has impoverished the musculature through coronary undernourishment. Blood has been supplied to the cardiac plexus and its outbranching nerves, still further denying the muscular tissue. With failing muscular tonus, the myocardium endeavors to compensate by hypertrophy of dilating walls. Anemic areas degenerate to necrosis and undergo fibroid changes. With this fibroid degeneration of the myocardium has resulted a probable sclerosis of the coronary vessels. Infrequently with a much impoverished circulation deposits of interstitial fat are noted. Fibroid degeneration is, however, the rule. These areas of fibrosis, if located in specialized tissue within the conduction paths or papillary muscles, exert a constricting pressure upon the nerves of impulse excitation, reaching the auriculo-ventricular node, from which, as has been described, branches run to both ventricles. The rebound of excitation to the sino-auricular node completes the local neurological picture. The synchronous ventricular systole fails in complete sphygmic discharge, and frequently an extra systole intervenes. The cardiac action may become definitely arrythmic.

Frequently the myocardium is weakened, but the process of degeneration has not advanced to the fibroid stage. The clinical picture is the same. Varied manifestations indeed, but throughout there is one constant, namely, the auscultatory evidence of inertia and the palpable diminution of normal force at the radial pulse when the arms are lifted above the heart level.

The psychic element to which I have alluded as concerned in the production of this condition is, I believe, an involuntary subsidence of normal projection of hopeful purpose. You will say that this is a by-effect and not a contributing causal element; my observations have been to the contrary. May I leave the thought with you as a possible incentive to experimental psychotherapy?

A series of two hundred cases of pulmonary tuberculosis, chosen at random, without previous history of cardiac pathology, have yielded under my observation the following manifestations:

Group 1. Fifty cases of minimal lesion.

(a) Forty-six were with subnormal systole.

(b) Four were apparently as yet unimpaired.

Group 2. Seventy-five cases of moderately advanced pulmonary lesion.

(a) Seventy-five were with impaired myocardial tone.

(b) Fifty-three were with mitral insufficiency.

(c) Nine were with mitral stenosis.

(d) One was with aortic insufficiency.

Group 3. Seventy-five cases of advanced pulmonary lesions.

(a) Seventy-five were with poor to very poor myocardial tone.

(b) Forty-seven were with combined valvular lesions.

(c) Nineteen had a functional arrythmia.

(d) Six were not compensating.

In a series of twenty-five autopsies on tuberculosis subjects, the myocardium showed in seventeen a fibroid degeneration; in four, a pale softened tissue; in three, atrophic patches; and in one, a fatty degeneration.

The pathology which I have endeavored to describe is not a true myocarditis. It is primarily not an inflammation. It is a degeneration. It is, per se, not incurable. If the subject matter of this paper shall have awakened renewed interest, stimulated new thought, or added to the information of any, I shall feel that I have not abused the honor and privilege your association has accorded me.

SUMMARY

1. There is a definite cycle of interdependence, interrelation, association and contribution in the cardiovascular and respiratory systems.

2. Medical literature contains little on the heart as directly affected by pulmonary tuberculosis, and we must be unafraid in our modesty to advance opinions.

3. It should be the duty of every physician to keep freshly in mind the visualization of the mediastinal contents and their relative contiguity.

4. The neurological picture is too often overlooked by the clinician in general work. Montgomery states that the specialist in tuberculosis should be a professor of the skin and its contents.

5. The morphology of the lungs in tuberculosis presents a picture of progressively lessened aeration, destruction of elastic tissue, atheroma and obliteration of vascular walls, intoxication, thrombosis, toxemia and neural irritation.

6. Increasingly impoverished blood reduces the nutrition of the coronary system, and permits myocardial tissue to degenerate.

7. Degeneration is largely fibroid in type, but occasionally fatty.

8. Minute areas of fibrosis upon the highly specialized muscular tissue of the conduction paths may cause widespread damage and disfunction.

9. Microorganisms of complicating mixed infections, with toxic detritus from caseating foci, enter the heart through the blood stream and set up an endocardial inflammation by lodgement.

10. The causative factor in the symptomatology and morphology of the heart in tuberculosis is a complex of the physiological and neurological, containing elements of both the somatic and psychic.

11. The pathology of the heart in tuberculosis is, primarily, not an inflammation, but a degeneration. It is, per se, not incurable.

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REGIONAL AND LOCAL ANESTHESIA ROUTINELY APPLIED IN GENERAL SURGERY*

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The first consideration in any surgical operation is the patient's welfare. This includes the type of operation performed and the result obtained. The second consideration is the patient's comfort, the object being to accomplish the surgical procedure with as little discomfort to the patient as possible.

The selection of the method of producing anesthesia, or rather the selection of the anesthetic to fit the case and the patient, is a problem which has always given the profes-

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sion profound concern. The methods from which the surgeon must choose in the majority of operations are: (1) General anesthesia, by ether, chloroform, nitrous-oxide oxygen; (2) regional anesthesia, which includes spinal anesthesia; (3) local anesthesia by infiltration and infiltration block.

The danger of general anesthesia is well known, especially as regards ether and chloroform. The danger of anesthesia from nitrous oxide has been greatly reduced in the hands of skillful anesthetists in the last few years, but the temporary and permanent damage to nervous system, kidneys and heart from ether and chloroform, especially damage to the liver in chloroform anesthesia, are too well known to deserve more than mention in this paper. The danger of spinal anesthesia is growing less as the knowledge of its proper use is more widely disseminated, but its use today is far removed from an ideal anesthetic for the average general surgeon. As the great majority of operations are performed by the average surgeon, our chief concern is the selection of an anesthetic that can be used by the average surgeon, that will give the best results and conserve the welfare and comfort of the patient.

After long observation and the testing of various methods of producing anesthesia, I have come to the conclusion that the majority of my patients are safeguarded, and their welfare and comfort best provided for by the use of infiltration and infiltration block anesthesia.

The work of Braun, Pauchet, R. E. Farr and others is a fair indication of the future of this method of anesthesia. In the hands of the average surgeon, infiltration and infiltration block are preferable to nerve block, as the difficulty of spearing for nerves and making numerous punctures is hard on both surgeon and patient, since it only requires about three separate needle pricks to put the patient in an apprehensive state of mind. There are many difficulties yet to be overcome before this method of anesthesia comes into universal use, as it unquestionably will. Among these difficulties, the apprehension of the patient is foremost; second, comes the lack of skill on the part of the operator; third, the acquirement of a surgical technic that is sufficiently steady, even and delicate as not to pull, drag and maul the patient about after the operation is started; and, fourth, more careful study of cases and better preoperative diagnosis.

The first of these difficulties, the apprehension of the patient, is enhanced by the stories of horrible experiences gone through by other patients, regardless of what method of anesthesia was used; so that all patients who are going to submit to a surgical operation of any character suffer more or less from apprehension.

If an operation under local anesthesia is contemplated, the preparation begins immediately the surgeon has decided the operation is necessary and the patient has consented to have it performed. The simple explanation of the numerous advantages of local over general and the assurance of post-operative comfort is in a vast majority of cases sufficient. It has been my experience that most patients will leave the selection of the anesthetic to the surgeon, and that nine out of ten of them are glad to avoid ether, with its accompanying discomfort, and will readily consent to have the operation performed without a general anesthetic. The next step in the preparation of the patient is to see that the attendants, nurses and assistants, with whom the patient comes in contact, are helpful in every manner, and that the patient is reassured in all instances, so that by the time he reaches the operating room his confidence and morale have been considerably increased. It is a good plan to have the patient get acquainted with the psycho-anesthetist. The presence of the anesthetist and his assurance of the patient is of vast import in all operations performed under local anesthesia.

In regard to the preoperative medication and preparation; this does not differ materially from the preparation in general anesthesia, except that the patient is allowed the food prior to operation that is of so much value to him the two or three days following the operation. He is not exhausted by purgatives, and he is not disturbed on the night prior to the operation any more than is absolutely necessary. I have usually given ¼ grain morphine and 1/150 atrophine just before the patient is sent to the operating room. This is now being dispensed with. I have not found that narco-local has any advantages over straight local. Morphine is responsible for most postoperative nausea and vomiting. There are cases in which narco-local should be used.

It is my custom to operate in the middle of the morning, so that the patient is allowed to sleep as long as possible, and is not awakened by the nurse or attendant to be given a bath, or for other hospital care. Four ounces of petrolatum liquidum is given the night before and, if possible, bicarbonate of soda for two days prior to operation, at least 160 grains a day and 120 grains at 9:00 p. m. the night before operation. If there is no contraindication, the patient is given an enema before being taken to the operating room. If para-spinal or caudal anesthesia is to be given, the patient is taken to the anesthetizing room, placed in the proper position and the injections along the nerve trunks then made. This is now done by making an initial wheal as recommended by Farr. This permits it to be done with one prick of the needle. Twenty minutes are allowed to secure the desired effect. In the meantime, the patient has gone through the first stage of the "operation" without pain. The psycho-anesthetist has had time to get a good firm hold on the patient's interest. The patient is then removed to the operating room, placed in the position for operation and a second injection along the line of incision made. This second injection is quite useful, as occasionally the injection of a nerve trunk is incomplete, and a small filament of sensory fibers maintain their conductive power, and a painful sensation along some small part of the incision is noticed.

For the following operations it has been my custom to dispense with para-spinal anesthesia and not to resort to nerve blocking until after the abdomen is opened: Appendectomies, cholecystectomies, gastro - enterostomies, and exploratory laparotomies. The splanchnic nerves can be blocked by direct infiltration, by slipping the hand up beneath the dome of the diaphragm and with a long needle inject on each side of the vertebral column and along the celiac axis. For a cholecystectomy, infiltration along the common bile duct has usually proved sufficient in the most difficult cases yet encountered. In appendectomies, retrocecal infiltration, if the adhesions are marked, and infiltration subperitoneally through the mesoappendix with a fine needle is sufficient.

If pelvic work should be encountered, the careful making of a wheal, using from thirty to fifty cubic centimeters along the posterior brim of the pelvis and in front of the great vessels. Then if work is to be done upon the tubes, uterus, or ovaries, anesthetization of the round ligaments is made at once and the anesthetic is spread down the broad ligaments until the nerves are blocked. The operation can then proceed in the usual manner and in accord with the operator's choice.

One of the chief causes of failure in abdominal work, especially, is the quick, jerky movements of the operator or his assistant; rattling of instruments; dropping of something on the floor that makes a noise and causes the patient to become tense. This should be strictly avoided. If complete relaxation of the abdominal wall is not obtained before opening the peritoneum, the patient should be given a general anesthetic. The "silent abdomen" is as necessary as it is advantageous. A careful, steady and sure touch, with the operator working constantly, is a great help and is very

reassuring to the patient. After the abdominal wall has been thoroughly infiltrated or the nerves thereto have been blocked, the incision is made by gently passing a very sharp knife along the skin to mark the line of incision. Farr recommends elevating the skin and cutting between towel pins. I have used this method and in some cases believe it to be advantageous. I rarely ever cut completely through the skin the first incision. The incision is then carried down to the fascia by making light, delicate strokes. The bleeding is controlled as the operation proceeds by carefully picking up the arteries and avoiding the snapping of instruments as much as possible. The deep fascia is very sensitive, and this should be tested at several points along the line of incision before the incision is made to be certain that the anesthetic has gotten beneath it and has thoroughly anesthetized the muscular tissue below it. This testing should never be done by sticking a sharp instrument into it and asking the patient if it hurts. They will always tell you that it does. Use your finger and they will tell you the same thing. Prick the fascia; if the patient flinches or the abdominal wall contracts, your infiltration technic has been faulty. The peritoneum is opened in the usual way and the abdominal wall is lifted upward by hooking the finger underneath. Avoid retractors as much as possible. If retractors are necessary, the spring retractor of Farr is the one that should be used. By making long incisions and using the assistant's fingers as much as possible, the use of retractors can usually be avoided. Farr condemns this as a bad practice on account of asepsis and unsteady pull, dropping, etc. My experience in the laboratory and in the study of wound infection causes me to consider this as a very ultra refinement, so far as infection is concerned, and one that takes a secondary place if it interferes with the steady progress of the operation.

The claim that local, regional and nerve block anesthesia can be used as a routine in general surgery is well demonstrated by the following operations:

ABDOMINAL OPERATIONS

Herniotomies: There have been thirty-six cases, including double direct and indirect, ventral of the congenital and postoperative types; six included appendectomy; four were ventral, two of them being complicated by intestinal adhesions and one by fecal fistula. Out of the thirty-six cases, one required nitrous-oxide and oxygen to complete the operation. This case was very complicated and adhesions gave promise of hemorrhage from deep vessels. The patient objected to the gas because he "saw no sense to it."

Appendectomies: Out of forty-eight cases, fourteen of which included pelvic work, only three required mixed anesthesia. The general anesthetic was given in two instances where the operation could have been completed without it. Difficulties that might require general anesthesia should, whenever possible, be anticipated and the patient be spared any horrifying experience.

Cholecystotomy: Removal of gallstones and drainage of gall-bladder, even with complete exploration, is very easily and satisfactorily done. It becomes almost a minor operation. A stone in the common duct, however, requires splanchnic block and very careful handling.

Cholecystectomy: Simple cholecystectomy presents no problems worthy of mention. Adhesions are easily handled by sharp dissection. Pulling on the gall-bladder must be avoided until the deep injection along the common duct is made.

Cholecystectomy and Appendectomy: Three cases of this type of combined operation were easily and quickly performed. Retroperitoneal injection and removal of the gall-bladder first was used in two cases. The third case did not receive any retroperitoneal injection, as the gall-bladder was large and easily accessible. Ten cubic centimeters of one-

half per cent novocain along the common bile duct was sufficient. In this case the appendix was adherent to the gall-bladder and the peritoneal adhesions appeared formidable. Sharp dissection and careful handling accompanied by surgical diplomacy completed the case without incident.

Gastro-Enterostomy: Two cases required ablation of the pylorus; two required appendectomy; one was a simple case. Once the surgeon has grasped the technic of operating in the upper abdomen under local anesthesia, this will be, in most cases, the method of choice. Three of these cases had had appendectomies performed under general anesthesia; all are now enthusiastic for local. The smooth and uneventful postoperative course makes a profound impression on the patient and attendants.

Entero-Enterostomy: One case without unusual features.

Ileus: Case with obstruction at the cecum. A firm band of adhesions was separated and the abdomen closed. Care was used in this case to prevent evisceration. This did not occur and the patient began passing gas before leaving the operating room. Uneventful recovery.

Laparotomy and drainage of large abscess in the lesser peritoneal cavity. One was tuberculous and anesthesia was ideal. One other had eroded the gall-bladder and when a large quantity of bile-stained fluid and pus was encountered, gas-oxygen was administered.

Gastric Carcinoma: Two cases were thoroughlly explored, found to have liver metastases and pronounced inoperable.

Gastrotomy: One case of the Weser operation was done with the ease of a minor operation.

GYNECOLOGIC

Hysterectomy: Three cases, in only one of which was gas-oxygen required to deliver the uterus, which was firmly adherent to the posterior pelvic wall. This might have been avoided if sacral anesthesia had been used.

Cesarian Section: The low incision preferred by DeLee was used in this case, as the operation of choice. (Note: Since this paper was read, five other cases have been operated under local anesthesia, one of them being a twin pregnancy.) All of these were eclampsia cases, and in all of them mothers and children have lived. There is no longer any necessity for adding the danger of ether to the toxemia of eclampsia in Cesarian section.

Perineorrhaphy and Trachelorrhaphy: No trouble is ever encountered from failure of the anesthetic if it is properly administered. Sacral anesthesia was used in five cases where abdominal work was to be done. Out of thirty cases, three required reinforcement of the anesthetic by second injection. These cases were due to faulty technic in the early part of this work.

Salpingectomy and Appendectomy: Trans-sacral nerve block was used in five out of ten cases. Three cases complained when traction was made on the uterus, but did not strain and contract the abdominal muscles sufficiently to interfere with the operation. One required gas-oxygen to dissect loose the appendix. The visceral peritoneum in this case was sensitive and the patient could detect the difference between the gloved finger and tissue forceps. When sharp dissection was attempted, the patient objected. This was the only case of this type encountered.

Tubal Pregnancy: One case in which the abdomen was opened and explored. The right tube contained the mass and was deep in the pelvis. On account of adhesions to the parietal peritoneum, a general anesthetic was given to complete the operation.

Large Ovarian Cyst: This single case is of more than ordinary interest. Five weeks before, she was operated by an out of town doctor in a large city. A vaginal hysterectomy was performed under general anesthesia, requiring over two hours and, according to the operator, proving quite dif-

ficult on account of hemorrhage. She was sent back to her home as soon as she could travel. The patient was in very bad condition when seen by me several weeks later. Examination disclosed a large mass in the pelvis with pus discharging from the vaginal vault. The opening was very small and there appeared a small thread or string in this opening. The opening was carefully enlarged to admit a hemostat and the thread was grasped with a dressing forceps and pulled out about three-fourths of an inch. A large amount of pus was evacuated. No hemorrhage occurred, and further traction was made on the protruding substance and a full-sized surgical sponge removed. The patient immediately began to improve. Two weeks later a large, thick-walled cyst, evidently an old one, was removed. Trans-sacral and paraspinal block was used here. Adhesions were very extensive and thick. The cyst was elevated after extensive dissection and 1500 c. c. of colloid material removed. This patient complained of disagreeable sensations when traction was made on the cyst wall, but said she suffered no pain throughout the operation. This proved to be one of the most formidable operations encountered. The heart and kidney condition absolutely precluded the use of ether and it is doubtful whether gas-oxygen would have saved this life by permitting the operation. It is cases like these that require local anesthesia or no operation can be done, and if this patient had come to operation before the use and value of local anesthesia was appreciated, undoubtedly the patient would have been lost. She made an uneventful recovery except for the heart condition, which has been damaged beyond recovery, the long ether anesthetic of the first operation probably being a contributory factor.

GENITO-URINARY

Nephrotomy: Nerve block from the eighth thoracic to the third lumbar. This is a formidable operation under local anesthesia. In this case, however, the anesthesia was perfect and the operation was completed without complaint. The lower angle of the wound was not well anesthetized and the patient flinched, but did not complain. This point was reinjected and the operation continued without interruption.

External Urethrotomy: Presents no difficulties to this method of anesthesia, and it is unquestionably the method of choice.

Cryptorchid and Herniotomy: Trans-sacral and lumbar block, with retroperitoneal infiltration below Poupart's ligament, gave complete anesthesia.

Hydrocele: Bottle operation of Andrews.

Cystotomy: Presents no features of special interest so far as anesthesia is concerned.

Removal of testicle, Vas and Seminal Vesicle: Trans-sacral and local infiltration was used and a satisfactory anesthetic obtained. Complaint was made when the peritoneum was pushed back. This area was injected and the operation proceeded without further complaint.

TRUNK AND CHEST

Liver Abscess: Rib resection and drainage, without complaint or special features.

Hemorrhoidectomy: The trans-sacral or sacral anesthesia have been found most satisfactory.

Pararectal Abscess: All of these patients complained when the abscess cavity was packed. In the future, caudal anesthesia will be used in such cases.

Fistula in Ano: Caudal anesthesia was used in these cases and satisfactory anesthesia obtained.

Inguinal Abscess: This apparently simple case elicited more complaint than any other. This was an early case and infiltration anesthesia was used when nerve block should have been used. The injection was the chief cause of complaint. The operator and not the method was at fault.

Axillary Dissection: This is a more difficult field than it appears. All of these cases were men, and brachial

plexus block and intercostal block were used. It is most advantageous. Time is no consideration and a careful dissection can be made.

Thoracoplasty and Rib Resections: Out of ten cases, one patient complained. This was a case where the pericardium was entered and drained after extensive rib resection, breaking down of adhesions and entering the pericardium from behind. The patient said he felt a sharp pain and described it as a "stitch" in his side. This lasted only a few seconds.

Lung Abscess: One of the most satisfactory operations that can be done under local anesthesia.

Excision of a tuberculous mass involving the eighth, ninth and tenth ribs. Intercostal block from the fifth to the twelfth thoracic proved sufficient.

HEAD AND NECK

Thyroidectomies: There have been eleven of these cases and none of them required a general anesthesia. None complained during the operation. Three were told several days after the operation just what had been done; these three were toxic and bad risks, but none of them presented operative difficulties. One case, an adherent and malignant thyroid, proved formidable. Five cases were done with the ease and facility of a minor operation. Two cases were substernal, but not difficult. The postoperative course in all of the series was far superior in all phases to similar cases operated under general anesthesia. This experience has led me to banish general anesthesia from all thyroid operations done by me.

Resection of lower lip, part of mandible and block dissection of glands of the neck. This was a formidable operation and required one hour and ten minutes.

Superior Maxilla: Removal of necrotic bone from floor of antrum in one case; electro-coagulation of carcinoma of antrum and alveolus in another case preliminary to insertion of radium. Nerve block and infiltration furnished ideal anesthesia in both cases.

Face: Excision of masses, removal of pieces of shrapnel and plastic work, were among the operations done. General anesthesia should never be required for any work on the face.

EXTREMITIES, BONES AND JOINTS

Varicose Veins: Extensive dissection presents no difficulties. Venous anesthesia might facilitate this operation, though I have not used it.

Arthroplasty: Ankylosis of the elbow is one of the easiest and most successful operations of this type. Brachial plexus block, with reinforcement by infiltration at the elbow, gave an ideal anesthetic. One case required gas to complete; the patient said he felt no pain, but could not stand the hammer and chisel.

Amputation of toes and fingers is a simple minor operation and the anesthesia is ideal.

Hallux Valgus: Three cases of this type were performed, one of which complained; this occurred when a nurse raised the patient's foot and dropped it suddenly.

Ununited Fracture: This case involved both bones of the forearm and brachial plexus block was used. The operation was extensive. This patient had been operated upon before under general anesthesia and he has decided that all future operations on himself, family and friends, if he has a voice in the matter, will be done under local anesthesia.

Arthrotomy: One case which involved the wrist. Dissection of tendons and annular ligament.

Osteomyelitis: There have been two cases thus far. They were approached with some hesitancy. Neither proved difficult. One was in the tibia and the other in the femur. One was a sixteen-year-old girl and was carried through without complaint. A similar operation was attempted on a sixteen-year-old boy. The patient stood the dissection without complaint, but when the bone was attacked, he complained. A hemo-

stat was then introduced and several points grasped without objection. The finger was then introduced and the leg rotated; the patient started a continuous shout and kept it up regardless of what was done. Gas was administered very lightly and the operation completed. The boy admitted that he felt no pain, but was expecting it and wanted to do all he could to help out.

Reduction of Fractures: Usually ideal anesthesia and perfect relaxation can be obtained by nerve block. This has become a routine procedure in reduction of fractures in the extremities, whenever the patient is old enough to give intelligent co-operation. One case of fractured elbow in a nine-year-old boy elicited complaint when the brachial plexus was blocked; the anesthesia was ideal; two similar cases have been so treated since this paper was read; one was uneventful and in the other the patient was a small boy who became frightened and gas anesthesia had to be administered. Fractures of the leg and Pott's fractures are easily handled under nerve block anesthesia, two of these having been treated since this paper was read.

The operations listed above are among the common cases that the average surgeon is called upon to handle, and experience with these justifies the following conclusions:

1. Local anesthesia should be used in all cases where it is possible.
2. The operating surgeon of today should make every effort to attain the highest proficiency as quickly as possible, and not wait until such time as necessity demands local in some desperate case.
3. Infiltration and infiltration block is easily performed and presents few obstacles to be overcome, that cannot be met by the average operator.
4. The postoperative course is always easier and the total pain suffered is less. Gas pains, etc., are less.
5. Convalescence is much more rapid.
6. The welfare and comfort of the patient are best conserved by this method of anesthesia.
7. Careful handling, elimination of unnecessary trauma, and sparing the central nervous system unnecessary burdens will go far towards eliminating shock.

DISCUSSION

DR. B. F. STEVENS: I agree thoroughly with this paper. We are neglecting our opportunity in not using local anesthesia more frequently, especially in tuberculous cases. If we did nothing more than reduce the morbidity following ether pneumonia in one per cent of cases, it is worth using. In appendectomy, herniotomy and gall-bladder operations it is certainly indicated. After you have once gotten the thing in hand, it is just as easy as operating under general.

DR. KENNEDY: We are all using local anesthesia in emergency cases, when we feel that we have to. If we use it in these cases successfully, where conditions are not favorable, why do we not use it more generally in cases where we have the privilege of choice?

DR. WATKINS: I do not, of course, come in contact with a great deal of surgery, but what I have seen of local anesthesia, especially by nerve blocking, has appealed to me. One case, in which electro-coagulation had to be used preliminary to insertion of radium into an antrum for carcinoma involving the alveolus and floor of antrum, was very beautifully anesthetized by nerve blocking and local infiltration. Have had occasion to observe the effects of several cases where the nerve blocking was done for reduction of fractures on the fluoroscopic table, and must confess that the work under this anesthesia, as compared with ether, is very pleasing to the radiologist. It is confusing and dangerous to the patient to administer general anesthetics in the dark—and it is during the fluoroscopy, while reduction is being attempted, that the greatest relaxation is required and hence the deepest anesthesia. The application of nerve block anesthesia seems to me much preferable.

DR. SWEEK (closing): Do not agree that it is just as easy to work under local anesthesia; the surgeon must know his anatomy more thoroughly. The control of the patient is the difficult feature, and this depends on the manner in which you handle your hands and voice and the control you have over the personnel of the operating room. The exploration of the abdomen should, by all means, be done under local anesthesia, because you can apply physiological tests by grasping the part and reproducing the symptoms complained of; for example, upper abdominal symptoms from appendicitis. Why we do not use local anesthesia more generally is a very pertinent question. If we wait until the deseprate case comes along in which local anesthesia is demanded, we will not be fitted to handle it, when it comes.

FURTHER EXPERIENCES WITH PEPTIC ULCERS ACCOMPANIED BY DEFORMITIES OF THE VISCUS VISIBLE BY X-RAYS*

By MAX EINHORN, M. D., New York

Last year I published a paper[1] reporting cases of peptic ulcers with deformities of the viscus evidenced by x-rays, treated from April 1, 1921, to April 1, 1922. It was shown that these far advanced cases of peptic ulcer with niche formation along the lesser curvature and deformity of the cap are amenable to medical treatment. The same view is held by Hamburger[2] and Diamond[3], as cited in my article. H. Ohnell has likewise written extensively on this subject. At the time I published my paper I was not aware of his work, and I wish here to compliment his meritorious pioneer work in this line. Ohnell[4] reported six cases of gastric ulcers with niches which he cured by medical treatment. In order to be successful, he considers abstinence from food by mouth for a number of days, followed by a light diet (Leube) as essential. In a later paper[5], the same eminent clinician published his experiences with thirty-six cases of ulcers with niches. In 92 per cent of these, perfect cures—that is, disappearance of the niches—were accomplished.

Notwithstanding the papers just mentioned and a few others expressing the same opinion, the question of the curability of peptic ulcers with niches is still doubted by a great many clinicians and by almost all surgeons. For this reason it does not appear inappropriate to publish so soon my further experiences with these cases. Before discussing the new material, however, I should like to review the condition of the patients described in my last year's paper. I regret that I cannot give an account of all of them, but shall state the progress of as many as I am aware of.

Of the six cases of ulcer with niche formations I know the condition of five. In case I (L. K., as described in my paper) the patient has gained about thirty pounds, eats everything, has no symptoms whatever, and attends to his business. In case II (Andrew R.), the patient, who had the largest niche and was almost beyond help, feels perfectly well, and up to January 5, 1923, had gained over thirty pounds in weight and eats everything. In case III (Harry A.), is also in good condition and has gained in weight. The patient in case IV (Solomon D.) was well up to November, 1922, when he began to be troubled with upper abdominal pains, especially in the right hypochondrium. He was sent to the hospital for investigation. All the examinations, including x-ray pictures, showed that there was no ulcer present—especially was there no reappearance of any defect or bulging out of the mucosa at the place where the niche had existed. It was found, however, that he had some gallbladder lesion to which his recent complaint was due. In case VI (John E. McC.) the patient improved considerably and gained in weight, but was advised by me to be operated upon on account of duodenal adhesions and gallbladder trouble. This was done and the patient is now perfectly well.

Of the cases with duodenal ulcers described, four patients are in good condition, while I have not been able to follow the others.

In the present paper I wish to describe briefly the new cases of ulcers with deformities of the stomach or duodenum which I have observed in the year from April, 1922, to April, 1923. Five of these cases were affected with gastric ulcers and eight had ulcers of the duodenum. Some of these had partial obstruction of the pylorus also (Schneck and Henry M.). Two of the cases with niche formations I shall briefly describe, while the others will be grouped in table form.

(*Read before te New Mexico State Medical Society on June 20, 1923, Albuquerque, New Mexico.)

Case I.—Jacob W., a widower, forty-four years of age, a laborer, born in Hungary. He was admitted to the hospital in January, 1923, with a diagnosis of penetrating ulcer of the stomach. His family history was negative. Five years previously he had a chancre and was treated for five weeks. Four years ago he had an attack of gastric trouble similar to that for which he was admitted, which lasted for seven weeks.

The onset of the last attack occurred in October, with sudden severe pain in the epigastrium. This pain persisted on and off to the time he was admitted to the hospital. The pain was located in the epigastrium, radiating to the chest, and came on one or two hours after meals. The ingestion of food slightly relieved the pain, which was worse at night. During the first three weeks of the attack the patient suffered from persistent vomiting after each meal. This subsided after dietetic treatment in a hospital.

The patient had suffered from diarrhea for the week previous to admission, having five to six movements daily, and had lost forty pounds in weight in two months.

The physical examination showed the skin to be dry and scaly; the pupils unequal; the teeth infected—pyorrhea; the lungs dull all over; the heart slightly dilated to the right; and tenderness in the epigastrium. Temperature 102° F. on admission, but subsided in three days and was normal ever since. The Wassermann test was negative, as was also the string test. The gastric contents showed: Hydrochloric acid+50; acidity=60. Blood examination negative. The x-ray pictures showed a big niche in the lesser curvature.

The patient was put on duodenal feeding for twenty-one days, at the end of which time he had no pain and had gained nineteen pounds in weight. He was discharged February 24, 1923.

During the duodenal feeding period, at the end of two weeks, the first control x-ray picture of the stomach was taken. At the end of three weeks the tube was removed and another x-ray picture of ehe stomach was taken, after which the patient was allowed a more liberal diet. An x-ray picture was then taken every week, the gradual diminution of the niche being distinctly seen. On March 16, 1923, the patient reported that he had gained twenty-nine pounds since the treatment.

Case II.—Karl B., fifty years old, was admitted to the hospital December 23, 1923, with a history of epigastric pain and vomiting for five years.

The patient began to complain five years ago of pain in the umbilical region, coming on three to four hours after eating, and was accompanied occasionally by vomiting. He had had ten severe attacks of this pain and vomiting within the past five years. Three weeks before admission the pain shifted to the epigastrium, and he suffered from severe vomiting from three to four hours after meals. He had always been constipated, and had lost fifteen pounds in the last five years. There was no blood in the stools, and no blood in the vomitus. The physical examination showed the stomach dilated, extending to the symphysis (splashing sound). The gastrict contents showed: Hydrochloric acid+acidity=50. There was no blood noted. The string test showed no blood stain; but there was bile present on it from twenty-four inches to the end. The x-ray picture showed a niche on the lesser curvature, and six hour gastric retention.

This case is of interest in showing that the niche entirely disappeared in the short period of two weeks, under treatment by duodenal alimentation. In a letter from the patient under date of March 20, 1923, he states that he is feeling perfectly well, is eating a liberal diet, and is attending to his work as a chauffeur.

The rest of the cases are presented in the accompanying table.

Inasmuch as the reproduction of the x-ray photographs is not always satisfactory when published, I prefer

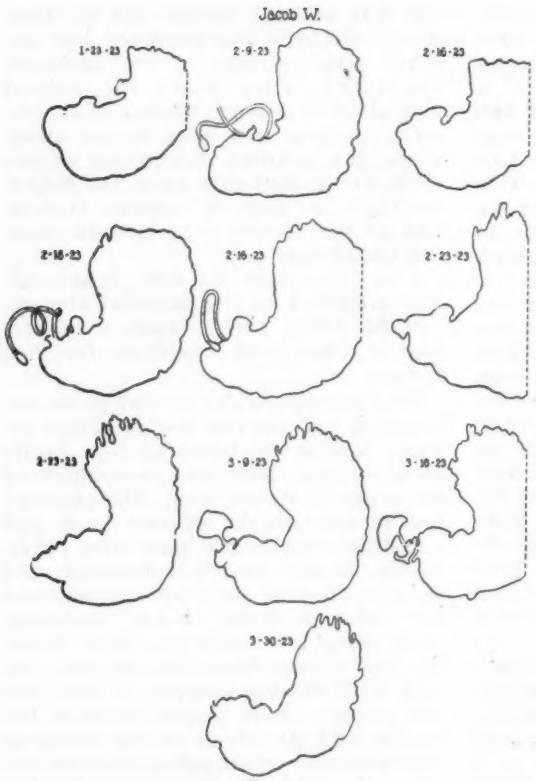

Fig. 1

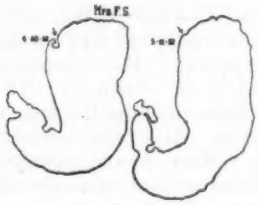

Fig. 5.

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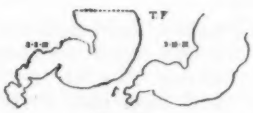

Fig. 8.

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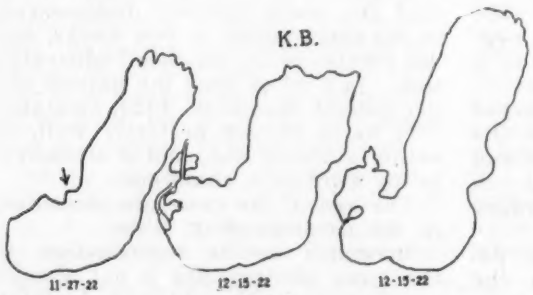

Fig. 4

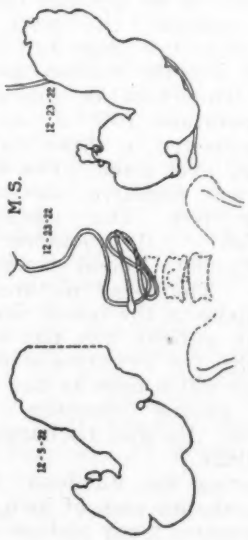

Fig. 9

Fig. 10

Fig. 12

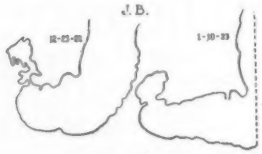

Fig. 11

Fig. 13

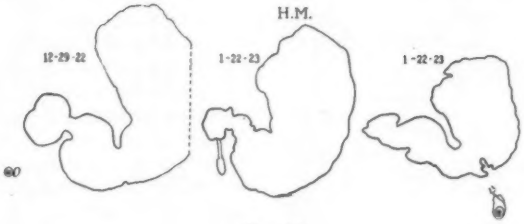

Fig. 14

Fig. 1.—Case I. Jacob W. (a) before treatment, January 23, 1923. Erect: niche of considerable size visible on lesser curvature. (b) Two weeks after treatment, February 9, 1923. Prone: niche has diminished to about one-third its original size. (c) Three weeks after beginning of treatment, February 16, 1923. Erect: niche has diminished to about one-sixth its original size. (d) February 16, 1923. Same: oblique, niche more distinct. (e) February 16, 1923. Same: prone. (f) One week after removal of tube or four weeks after beginning treatment, February 23, 1923. Oblique: niche has diminished to about one-tenth its original size. (g) February 23, 1923. Same: prone, niche hardly noticeable. (h) March 9, 1923. Six weeks after beginning treatment. Oblique: hardly a trace of niche visible. (i) March 16, 1923. Oblique: hardly anything noticeable. (j) March 30, 1923. Nine weeks after beginning treatment. Oblique: perfectly normal; not a trace of niche noticeable.

Fig. 2.—J. P. B. (Case I, table). (a) May 1, 1922, before treatment. Niche on lesser curvature visible. (b) May 17, 1922, aftre treatment. Niche has disappeared.

Fig. 3.—J. H. O. (Case II, table). (a) March 13, 1923, before treatment. Oblique: Niche of considerable size on lesser curvature. (b) April 6, 1923, after treatment. Oblique: Niche has entirely disappeared.

Fig. 4.—Karl B. (Case II, text), (a) November 27, 1922, before treatment. Medium size niche visible on lesser curvature. (b) December 15, 1922, after treatment. Tubes visible in duodenum. Niche has almost disappeared. (c) December 15, 1922. Same, erect; not a trace of niche noticeable.

Fig. 5.—Mrs. F. S. (Case III, table. (a) April 20, 1923, before treatment. Defect in cardiac portion of stomach visible. (b) May 11, 1923, after treatment. Defect has disappeared.

Fig. 6.—Solomon D. December 1, 1922. Re-examination of patient—reported in last year's paper and mentioned in text of present article—shows no return of the niche.

Fig. 7.—Frank D. (Case IV, table). (a) May 1, 1922, before treatment. Considerable defect in pyloric portion. (b) May 16, 1922, after treatment. Defect has almost disappeared.

Fig. 8.—Timothy F. (Case V, table. (a) February 2, 1922, before treatment. Deformed, lengthened and rigid pylorus. (b) May 15, 1922, after treatment. The deformity is less marked.

Fig. 9.—Morris S. (Case VI, table). (a) December 5, 1922, before treatment. Marked deformity of cap. (b) December 23, 1922. Stomach empty (without borium); duodenal tube in the small intestine. (c) December 23, 1922, after treatment. Same, after borium injection; deformity of cap less marked; tube visible in small intestine.

Fig. 10.—Siegmund K. (Case VII, table. (a) December 1, 1922, before treatment. Marked deformity of cap, with contraction of lumen. (b) December 19, 1922, after treatment. Cap less deformed, almost normal; capsule end of tube visible in beginning of jepunum.

Fig. 11.—Jacob B. (Case VIII, table). (a) December 23, 1922, before treatment. Persistent defect in the first portion of the duodenum. (b) January 10, 1923, after treatment. Defect has disappeared; cap almost normal.

Fig. 12.—Fred M. (Case IX, table). (a) October 13, 1922, before treatment. Marked irregularities in the prepyloric region, and deformity of cap. (b) November 3, 1922, after treatment. The irregularities have disappeared and the deformity of cap has become less marked. (c) January 17, 1923. The pyloric portion has has assumed a more normal appearance.

Fig. 13.—Miss Ida W. (Case X, table). (a) December 11, 1922, before treatment. Sacculation in second portion of the duodenum, and defect in prepyloric portion. (b) December 29, 1922, after treatment. Defect and sacculation have entirely disappeared.

Fig. 14.—Henry M. (Case XI, table). (a) December 29, 1922. To the right of the stomach two beads are visible, indicating that the digestive test capsule or beads have passed through the narrowed pylorus. (b) January 22, 1923. The capsule end of the duodenal tube is visible in the duodenum. (c) January 22, 1923. The bead attachment of the duedenal tube is seen in the beginning portion of the jejunum.

TABLE OF THE REMAINING CASES OF PEPTIC ULCER WITH DEFORMITIES OF THE VISCUS VISIBLE BY X-RAYS TREATED FROM APRIL 1, 1922, TO APRIL 1, 1923.

No. Name	Symptoms	Physical Signs	String Test	Gastric Contents	X-Ray	Results
1. J. P. B...	Pains immediately after meals, duration 20 years. Occasionally vomits but no blood. Had an attack of hematemesis 21 years ago. Has lost 20 pounds past 4 months.	Tenderness on pressure, stomach considerably dilated.	Positive; blood stain, 53-55 c.m.	HCl., pos. Ac., 85.	Penetrating ulcer of lesser curvature, 6 hour gastric residue.	Niche disappeared, patient feels very well.
2. J. H. O...	Past 2 years, nausea and vomiting; epigastric pains late after meals; food relieves pain.	Pains on pressure in left epigastrium, radiating to the back.	Positive; blood stain, 61-62 c.m.	HCl., pos. Ac., 50. Blood, pos.	Penetrating ulcer of lesser curvature.	Niche has entirely disappeared; patient feels well.
3. F. S.	Pain and burning in epigastrium for 15 years.	Tenderness on pressure right beneath the ensiform process.	Positive; blood stain, 35-50 c.m.	HCl., pos. Ac., 90.	Irregular defect on the lesser curvature, high up at the cardia; slight gastric residue after 6 hours.	Defect disappeared; patient feels better.
4. F. D.....	Lues 20 years ago; past 7 years pains after meals; melena and hematemesis; Wassermann 4 plus.	Tenderness on pressure under right costal margin.	Positive; blood stain, 43-56.	HCl., pos. Ac., 85.	Defect on the greater curvature of the stomach in the prepyloric area; the cap is deformed; slight 6-hour gastric retention.	Defect has decreased; patient eats and feels well.
5. T. F.....	Discomfort in epigastrium for 6 years, no relation to food; hematemesis and melena once. Wassermann neg.	Pains on pressure beneath the ensiform cartilage.	Positive; blood stain, 55-57 c.m.	HCl., pos. Ac., 112.	Duodenal ulcer with deformity of pylorus.	The deformity is less marked; patient feels well.
6. M. P.....	Past 12 years has had pain on and off in right hypochondriac region 2-3 hours after meals pain was relieved by eating; Wassermann neg.	Liver enlarged. Pains on pressure in right hypochondrium, stomach dilated and extending a hand's width below the navel.	Positive; blood stain, 50 c.m.	HCl., pos. Ac., 40. Blood, neg. (Feces neg. for blood.)	Deformity of cap in all films; slight 6-hour gastric retention.	Deformity lessened; patient feels well.
7. S. K.....	Vomiting on and off past 2 years; headaches one year; pain in right hypochondrium 3 weeks. Wassermann neg.	Tenderness on pressure in right hypochondrium.	Positive; double blood stain, at 56½ c.m.	HCl., neg. Ac., 10. Lact. Ac., neg. Blood, neg.	Cap contracted; considerable 6-hour gastric retention.	Deformity of cap less marked; patient feels better.
8. J. B.....	Duration 9 years with periods on and off lasting several weeks of epigastric distress one and one-half hours after meals; relieved by bicarbonate of soda. During the last 5 years there was also vomiting during the attacks.	Pain on pressure in the middle of the epigastrium.		HCl., 82. Ac., 98. Blood, neg.	Persistent defect in the first portion of the duodenum.	Deformity and defect of cap have disappeared; patient feels better; has gained 30 pounds in weight; eats a liberal diet.
9. F. W. W.	Duration 8 years; heartburn 3-4 hour after meals, coming on in periods lasting several weeks, with few intermissions.	Tenderness in the entire epigastrium; stomach dilated, extending 3 fingers' width below the navel.	Positive; blood stain, 42-52 c.m.	HCl., pos. Ac., 70. Blood, neg.	Marked irregularities in the prepyloric region, suggesting ulceration with spasm.	Deformity of cap less marked; patient eats and feels well.
10. Miss I. W.	Duration 13 months; epigastric distress, belching of gas, nausea right after eating.	Pain on pressure under right costal margin.	Positive; blood stain, 41-43 c.m.	HCl., pos. Ac., 72. Blood, neg.	Peculiar sacculation in ascending portion of the duodenum just beyond its junction with the bulbus. Such finding usually indicates a diverticulum; slight 6-hour gastric retention and considerable retention in the diverticulum. (Dr. W. H. Stewart.)	Diverticulum has disappeared; patient feels well.
11. H. M.	Duration 10 years, epigastric distress on and off during this period. Diabetes mellitus for a number of years.	Tenderness on pressure in right hypochondrium, stomach dilated, extending to the symphysis.	Positive; blood stain, 48-52.	HCl., pos. Trace Digestive test capsule appears after 50 hours; remaining some thymus (no nuclei).	Distinct pressure defect on the duodenum, suggesting some involvement of the gall-bladder.	Cap fills out better.

to give sketches made by an artist from the photographs taken in all these cases. They were all taken at the Lenox Hill Hospital, and I herewith express my thanks to Dr. W. H. Stewart, the head of the department for roentgenology. The result of treatment, which was always duodenal alimentation, was very gratifying. In one of the patients (Henry M.) the pylorus was partially stenosed and the tube did not pass the outlet during a period of five days. I was inclined to have the patient undergo an operation (gastroenterostomy), but on account of his age (sixty-seven years) and his condition (he was suffering from diabetes mellitus), and also because he was strongly opposed to operation, I decided to make further efforts at medical treatment.

I attached a bead with a string to the capsule of the duodenal tube and had the patient swallow this contrivance. The bead being much smaller than the capsule, passed through the narrowed pylorus in twenty-four hours, and in another twenty-four hours pulled the capsule into the duodenum, and made the duodenal alimentation feasible.

While at first I thought that the disappearance of the niche was a mere possibility, I am now of the opinion that this is rather the rule, provided efficient treatment is instituted. It is, therefore, evident that these old peptic ulcers with deformities do not as such form an indication for surgery, for they can be healed. It is understood, of course, that there may at times be urgent reasons for intervention and that surgery may have to be resorted to, but in my opinion most cases can be healed by proper treatment.

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PROGRESS IN THE TREATMENT OF DIABETES*

Report of Cases

By DR. F. D. GARRETT, El Paso, Texas.

Since the modern treatment of diabetes mellitus is so intimately connected with certain basic facts having to do with the present conception of the physiology and pathology of the pancreas, and with our knowledge of post-absorption metabolism, it seems fitting to review briefly some of the most salient and important advances in these fields.

Cauley, in the latter part of the eighteenth century, discovered the connection between diabetes and disease of the pancreas. In 1893, Von Mering and Minkowski, by the removal of the pancreas of dogs, found that diabetes could be produced at will by removing the whole or a part of the gland. In 1900 Opi discovered that the seat of the pathological change in the pancreas causing diabetes in man is that part known as the islands of Langerhans. About the same time, Stangl and Wichselbaum described a hydropic degeneration and vascuolization of the small island cells in diabetic glands. This made it possible for the pathologist to diagnose diabetes from the study of the gland tissue alone.

Later Allen[1] continued the study of the pancreas in depancreatized dogs and drew the following conclusions:

"That hydropic degeneration of the islands of Langerhans is a specific diabetic phenomenon produced solely

(*Read before the El Paso County Medical Society, at El Paso, at regular meeting of October 1, 1923.)

by overstrain of the function of the cells by diets in excess of the weakened assimilative power."

This observation gives us the reason for the downward tendency in the progress of a patient who has diabetes who will not or cannot be kept sugar free.

Allen also concluded from his experiments, "that the hydropic change in the cells is probably reversible within certain limits; and even widely vacuolated cells may recover their former size and granulation provided the cell membrane has not burst or the nucleus become too badly degenerated." Allen further observed that "the profound cachexia following total pancreatectomy is not due solely to the failure in the carbohydrate metabolism or the hyperglycemia or glycosuria resulting from this failure"; also "that the alpha, duct, acinar, or other cells in the pancreas furnish an unknown internal secretion which is somehow important for the welfare of the organism."

Banting and Best,[2 3] working under McLeod, in the laboratory of the University of Toronto, knowing that the acini but not the islands of Langerhans, degenerate after ligation of the ducts of the pancreas, hoped by the ligation of the duct, to avoid pepsinogen or its derivatives and to secure a pure and potent extract. This procedure was carried out on a series of dogs, and at the end of ten weeks the pancreas was removed. It now showed an abundance of healthy islets and a complete replacement of the acini with fibrous tissue. An extract was obtained from the pancreas prepared in this manner and it was found that the extract invariably exercised a reducing influence upon the percentage of sugar in the blood and the amount of sugar excreted in the urine, and that the extent and duration of the reduction varied directly with the amount of extract injected.

In November, 1921, the same observers[4] made the highly important discovery that the pancreas of the fetal calf under five months in development possessed the desired internal secretion, but did not contain this undesirable digestive pancreatic juice. It is not necessary to follow the steps in the preparation and final standardization of the finished product, Insulin, which is already a part of our armentarium.

Too much credit cannot be given to Banting and his colaborers for their achievement. At the same time, we should not forget those who labored long, and often without credit, to obtain the basic facts on which they built. The giving of this product to the world without financial reward is further evidence of that altruism in medicine which always has, and we hope always will, grace our profession.

Due largely to the work of Allen and Joslin, the great importance of blood sugar estimations in the diagnosis and treatment of diabetes has come to be appreciated. Usually when the blood sugar rises above 0.16 or 0.17 per cent, the so called glucose threshold, sugar appears in the urine. Joslin states that threshold values above 0.18 per cent have not yet been found for normal persons, but lower levels are frequently obtained in cases with renal glycosuria.

Woodyatt[5] recently made important observations which have led to the rather general adoption of a formula for estimating the total available carbohydrate value in the diet, viz., that the total glucose value of a diet is equal to all the carbohydrate plus 58 per cent of protein plus 10 per cent of the fat.

It was established by Benedict, Joslin and DuBois that patients with severe diabetes have a distinctly higher metabolism than normal persons in a similar state of nutrition, or than the same patients when their diabetes is controlled by treatment.

Quoting from Lusk[6], "When the patient was intensely diabetic the number of calories produced per hour as measured by the calorimeter was 73.2. The weight of the patient was 56.5 k. The heat production was normal for that weight. Later, thru starvation, the weight fell from 56.5

to 46 k. and the patient developed a high degree of carbohydrate tolerance. The calories produced per hour fell from 76.4 to 43, or was 35 per cent under the normal for the body weight. Thus he requires only about 60 per cent of the food that he had required previously when he was heavier and diabetic. Accordingly, so long as he is diabetic, the patient is forced to overtax his enfeebled metabolic function with a load far beyond his actual need. Efficient treatment allows a fall to the low metabolic level proper to him as an undernourished individual. When the changes achieved within a few days are of the order illustrated in the above it is no wonder that the beneficial effects of correct diabetic treatment upon the diabetic is often strikingly evident.

Joslin[7] states that a diagnosis of renal glycosuria is always dangerous and leads to carelessness on the part of the doctor and the patient. True diabetes often follows upon the seemingly mild condition called renal glycosuria. However, a few cases of what seems to be true renal glycosuria have been reported.

Billings, of Chicago, reports the case of a boy of 12 who had a large percentage of sugar in the urine which persisted during a period of 27 years. At the end of this time the blood sugar was normal under all conditions and the patient appeared to be in good health. The presence of sugar in the urine with lower blood sugar than that at which glycosuria usually occurs, or with a subnormal level is considered to be proof of a renal glycosuria.

Damage to the pancreas by infection is thought to be the principal cause of diabetes mellitus. Allen thinks that chronic pancreatitis from infection with organisms of low virulence accounts for the great majority of cases.

Biliary infection, with or without stones, is believed to be an important source of infection. It is also probable that infected teeth, tonsils, and gastro-intestinal tract may be a source of the damaging bacteria or toxin.

The treatment consists in the old and tried principle of rest to the diseased tissue. The rest is secured by getting the tolerance of the patient to glucose, that is, the point at which the patient gets free from sugar. After starting him at zero fat and zero (or very little) carbohydrate and protein, the diet is gradually increased. Since the advent of insulin, in some severe cases it does not seem necessary nor advisable to starve the patient or to start him on a very low diet, but to begin at once giving insulin, and increasing the doses until the urine is sugar free, and the blood is at a normal level. It seems to me that Allen's plan of gradually withdrawing successively, fat, carbohydrate and protein, and then giving only broth and coffee for a day, followed by a return to a small amount of carbohydrate, then protein, then fat, and gradually increasing them, still offers the best and most satisfactory way of getting the patient sugar free, and determining at the same time his carbohydrate tolerance.

I wish to report two cases of diabetes mellitus, each of which is a representative of a large group of diabetic patients. The prognosis in both cases would have been exceedingly grave fifteen years ago.

CASE I.

Mrs. H.; white, American; housewife. Referred by Dr. J. M. Richmond.

Family History: Father died at age of 25 of tuberculosis. Mother died at age of 43 of chronic kidney disease the history of which would suggest renal tuberculosis. Patient had no brothers or sisters.

Past History: Patient lost her only child, a boy of 16, five years ago, following which she had a complete nervous breakdown and has not been well since. One year ago had rheumatism affecting the right knee. At about the same time noticed a very dry skin and pruritis with itching. Patient has had hay fever every summer for the past 14 years. Two years ago had a breast removed on account of small malignant tumor. There has been no recurrence. There is no history of past infection.

Physical Examination: Patient is 5 feet 5½ inches in height. Weight 155. Maximum weight 168. Nose, throat, tonsils nega-

tive for infection. No infected gums. No crowned or abscessed teeth. Tongue coated. Pulse 90, soft, slightly irregular. Blood pressure 144-84. Cardiac sounds normal, no murmurs. Lungs normal. Menstruation regular and not painful, but preceded and accompanied by marked increase of nervousness. Pupils react normally to light and accommodation, Romberg negative. Deep reflexes normal. No tremors. Patient rather inclined to stoutness. Muscles very flabby. There was no enlargement of the thyroid or other signs of hyperthyroidism. No vascular signs of disturbance of the adrenals. No evidence of disease of the pituitary. Urine showed 2.5 per cent sugar (fermentation). Blood contained 0.28 per cent sugar. Diacetic acid strongly positive.

Patient was put to bed and given fat free, low carbohydrate and protein diet, so that on the third day all food had been withdrawn except clear broths and coffee. Increases were then made, beginning with a carbohydrate, then protein, and later fat was added, so that at the end of five or six days she was getting about 35 grams of carbohydrate, 36 grams of protein, and 80 grams of fat.

At this point, according to Woodyatt, she was getting 72 grams of glucose, and had a positive test in the urine. Up to this point the diacetic acid was constantly present in the urine. We began giving patient 10 minims of H-5 iletin three times a day. We increased the carbohydrate to about 70 grams. The patient immediately felt better, but there was a slight sugar reaction in urine. The examination of the blood in the early morning, at this time, showed 0.15 per cent sugar. The iletin was increased to 12 minims three times a day and she became sugar free. Without increasing the amount of iletin gradual additions were made to the diet until at the end of six weeks she was getting about 100 grams carbohydrate, 80 to 90 grams protein, and 150 grams fat.

Blood sugars have been taken occasionally and have never run above 0.12 per cent. The lowest was 0.08 per cent.

Patient has been able gradually to omit the iletin and now, after five months, is taking only 4 minims, night and morning, once a week. She has been taught to test her urine and reports that she has had no sugar for some time.

CASE II.

Mr. K.; age 51; white, American. Occupation, merchant. Patient states that he is an office man and for many years has worked under considerable strain. Height 5 feet 11 inches. Weight 154 pounds.

Chief Complaint: There is general weakness, and for the past two months pain in the head and discharge of pus from the left ear. Diagnosis of diabetes mellitus and mastoiditis has been made by Drs. Richmond and Schuster. The radiographs showed that there was marked evidence of disease of the mastoid. Patient complains of sleeping very poorly on account of pain.

Physical Findings: Skin pale, glossy, smooth and dry. Temp. 99 to 101. Pulse 90 to 110. A few infected gums, but no crowns or abscessed teeth apparent. All teeth need attention. Radials somewhat thickened and tense. Blood pressure 134-90. Heart regular in action. Area of cardiac dullness normal. Sounds and rhythm normal. No signs of disease in the lungs, but the respiration was very superficial. No tenderness nor muscular rigidity nor painful areas in the abdomen. No dullness. Spleen and kidneys not palpable. No hernia. No enlarged glands. Genito-urinary organs normal. Pupillary reflexes normal to light and accommodation. Romberg negative. Deep reflexes sluggish. Patient looked like he had lost considerable weight. Muscles flabby. There was no evidence of thyroid or pituitary disturbance. Thirst not increased. No recent skin infections. No history of prior infection except for rheumatism in the knees. Patient had no digestive disturbance except slight constipation. Has been on restricted diet for some years.

Examination of the urine showed a small amount of sugar with a marked positive diacetic acid. On account of this condition we decided that it was best to begin giving him iletin after a very brief and partial fast. We began with 4 minims of iletin three times a day and increased this gradually until he took as much as 12 minims three times a day. During a period while the iletin was being increased the blood sugar was estimated at intervals and ranged from 0.18 in the beginning of the treatment to about 0.10. On one occasion the blood sugar reached 0.05 per cent. There was never any toxic effect from the iletin manifested at any time except a rather marked puffiness of the face, which seems to be a rather common occurrence when iletin is given.

Dr. Schuster, who treated the ear, did not think that the mastoid would clear up without operation; but under treatment the suppuration gradually decreased and the pain and edema over the mastoid disappeared. He was kept under observation here for about two months and returned home.

We had found that he could take care of around 100 grams carbohydrate, with 90 to 100 grams protein, and 150 grams fat. He has remained about 10 pounds under weight, but reports that he feels fine and at the present time is taking about the same diet as when he left. The iletin has been reduced to about 10 minims twice a day. He occasionally finds a trace of sugar in the urine, and that usually on days when his work is unusually heavy.

I must acknowledge, with thanks, the cooperation of Drs. Richmond and Schuster in these cases. The outlook for both cases seems very good. They have learned the principles of diet as applied to their cases. They know

how to test their urine for sugar and diacetic acid. They have been taught that it is better to be thin and well than fat and sick. We have tried to teach them the "why" for what they do.

In a sense there is no cure for diabetes, in so far as there is no replacing of tissue cells once destroyed. But the combined experience as applied to the treatment of diabetes makes it certain that a cure in every practical sense can be obtained in all but the most severe cases by the means at hand.

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THE PROGRESS OF SURGERY SINCE ANTIQUITY

WILLIAM R. LOVELACE, M. D., Albuquerque, N. M.

The earliest records which have been handed down to us in the realm of surgery come from Egypt and have been verified by the payrus Ebers, written 1552 B. C. This is a compilation of directions and recipes for the treatment of numerous diseases, many of which are referred to as being already ancient at that time. Later human skulls were found, in which holes had been drilled and parts been removed by means of stone tools, supposedly for the relief of headache, epilepsy and similar ailments, indicating that surgery dates back to the stone age. The age of these relics is only approximately known, assuming that palaeontology has traced the beginning of human existence to a period between 50,000 to 100,000 years ago, in the post-glacial age, according to the science of evolution.

More recent knowledge of practical medicine and surgery extends to the time of the pyramid builders in the valley of the Nile. There we find it recorded by sculpture as a series of operations carved in stone in a tomb in the necropolis at Memphis, which was built by King Menes I, the founder of the first Egyptian dynasty. These surgical sculptures are of a date about 4,500 years ago. They were discovered by Max Muller on a mission for the Carnegie Institute.

ALLUSIONS IN OLD TESTAMENT

In the Old Testament are found a few allusions to medicine—used in the larger sense and embracing surgery as well—indicating that most diseases are punishments inflicted by the divine power and must be removed by sacrifice and special ceremonies. It naturally follows that priests were the chief "medicine-men", although there seem to be a few exceptions to this rule. Further, still, in connection with religious lore, reference to surgery is found in the Talmud.

Surgery was done prior to the year 200 A. D. by Jewish rabbis. They understood the application of artificial parts—teeth, wooden legs and other substitutes for the lower extremities — were acquainted with sutures for wounds and various other helpful operations, and venesection, leeching and cupping were commonly practiced. Surprising as it may seem, anesthetic substances to diminish pain were used, although in a very crude way, by these people.

PROMINENCE IN HYGIENE

While the Hebrews attained the greatest prominence in hygiene

among the Orientals, the credit of having excelled all other nations of their time in operative surgery belongs to the Hindus. To go away back, however, to the earliest Sanskrit documents (1500 B. C.), treatment then consisted of spells and incantations against the demons of disease of their human agents, the witches and wizards. In the Brahminical period (800 B. C.-1000 A. D.) medicine was entirely in the hands of priests and scholars, and Cingalese records indicate the existence of hospitals in Ceylon in 437 and 137 B. C. In the Susruta, a Brahminian publication of the fifth century A. D., about one hundred and twenty different surgical instruments are described. Limbs were amputated, hemorrhages checked by cauterization, fractures and dislocations treated by a special splint made of bamboo, a method later adopted in the British army. It is a remarkable fact that at this early date these surgeons were employing skin grafting, plastic surgery and the like, and it is interesting to note that their method of extracting cataract is still in use at the present time. The Hindus were pioneers in experimental surgery, using plants, gourds, cucumbers, as well as dead animals; particularly with the object in view of insuring rapidity and thoroughness of technic in the absence of an anesthetic.

POEMS OF HOMER

From the poems of Homer have come our first allusions to surgery in Greece, dating from about 1000 B. C. Among the Greeks, at this time, were numerous surgeons whose knowledge and skill were greatly esteemed, as elucidates from the fact that monuments and portrait statues were erected to preserve their memory. In addition, many of the warriors, and even some of the Grecian women, were apt at dressing and bandaging wounds. Over forty wounds in different parts of the body are described in detail, the nomenclature being identical with that used later by Hippocrates—who was born about 460 B. C.—and to whom we are next indebted for our knowledge of medicine among the Greeks. Most of the physicians (who were also surgeons) during the time of Hippocrates were priests, although a number of them were admitted to the guild on the claim that they were descendants of Hippocrates.

Among the contemporaneous investigators, Schilemann is prominent as the excavator of Troy. He found in the old city of Mycennae a sculpture of very hard stone representing a set of coils of intestines which shows very well the difference between normal intestine and that inflated by gases. This dates from not later than 600 B. C.

CAPTURE OF ALEXANDRIA

After the capture of Alexandria by the Mohammedans (about 640 A. D.), the Arabians became the inheritors and preservers of the science of the Greeks, and it is to Abulcasem (died 1106) and Avenzoar (died 1162) that we owe chiefly our knowledge of the surgery of these people. Also of Rhazes and Avicenna are arabic medical writings preserved of the period of 850 to 1037. While the arts and sciences progressed in the countries under Mohammedan rule, and especially in Spain, medicine in the rest of Europe was practically in a condition in which it exists in barbarous tribes. With the rise of the monkish orders, the priests became practitioners, and prayers and relics were relied upon. Hebrew physicians were called upon by the kings and nobles, and during the tenth and eleventh centuries they were considered by both Catholics and Mohammedans as the only doctors who possessed scientific knowledge. Surgery was practiced principally by barbers and men of inferior caste, each a specialist in his own particular sphere, the knowledge being handed down from father to son, as in the case of the Greeks, previously referred to.

Until the thirteenth century with the rise of universities in Italy there were practically no European writers or teachers of surgery, with the pos-

sible exception of the medical school of Salerno in the ninth century. To this school came Constantine Africanus, a learned Carthagenian, who translated all the Arabian, Indian, Egyptian and Greek medical writings, which subsequently became the textbooks of all Europe, these treasures being far in advance of the existing knowledge of physicians of the time.

In the fourteenth century, however, it was superseded by schools in Naples, Bologna, Paris and Montpelier.

FRENCH SURGICAL AUTHOR

Guy (also known as Guido de Cauliaco) was the great French surgical author of the fourteenth century, and his teachings were the chief authority for over two hundred years, although he contributed little that was new. At this time, the practice of surgery and of medicine in western Europe were held as distinct branches. Those who practiced medicine considered themselves on a higher plane and spurned the shedding of blood, which was left to the barbers to do. But the barbers actually were men who had acquired some experience in the monasteries, where the monks were bled as well as shaved. (Some monks, especially the brethren of the order of St. Benedict, also practiced surgery in the monasteries.) During this time there was constant friction, for the medical men, feeling that the surgeons were encroaching upon their domain, encouraged the barbers by teaching them anatomy, with the result that later—in the early years of the sixteenth century—the Guild of Barber Surgeons came into being. About 1540, the barbers and surgeons in England were united and incorporated by act of parliament as the Company of the Barber Surgeons. This, however, did not end the constant difficulties which periodically arose between the medical men, master surgeons and barbers.

SURGEONS FORMED A GUILD

In Germany the surgeons formed a guild on the principles of the artisans' guilds. They acquired their practical knowledge from a master surgeon and completed it later partly from books, partly from study in scientific institutions. There were two groups of surgeons; one was established in towns as practitioners of general surgery, and the other, known as "cutters" (herniotomists), "incisors" (lithotomists) and "oculists," traveled throughout western Europe and performed all kinds of emergency surgery. The license to practice for the established practitioners, physicians, as well as surgeons, depended on certain conditions defined by a law which the Emperor Frederick II issued and enacted in 1224. According to this law, the medical men in order to be admitted to a final examination, had to study "logic"—philosophy and philology—for three years, medicine and surgery for five years and had to practice under the supervision of an older physician for some time as degrees "Magister" received the degrees "Magistar" and "Doctor."

In France, about the same time, the medical faculty of the University of Paris (established in 1205) began to regulate the licensing of the medical and surgical practice by issuing degrees. The exclusive surgeons united in a corporation called the College de St. Come, aspiring at the same time to the degrees of bachelor and "license" (to lecture). The members of the barbers' guild, permitted by law to practice minor surgery, in competition with the members of St. Come, wanted the entire surgery. The medical faculty for some time favored the barbers because they did not want the surgeons of St. Come to become too arrogant. Thus, not only in France, but in every civilized country, the wrangling factions keep up the strife in competition for honors and for material reward to this present day.

ADVANCES IN PHYSICS

In Holland, previous to the seventeenth century, surgery had made little progress, but about the middle of that century students from all Europe were attracted to the schools of Amsterdam and Leyden, where the surgeons were doing much original

work. Experimental work was then first resorted to on bodies of criminals and on persons dying from unusual diseases, as well as on dogs. This work was made possible through the advances in physics and all the science under the influence of the "Renaissance" (invention of the printer's art, 1456), and it became a source of important discoveries in anatomy and physiology.

The sixteenth and seventeenth centuries are marked in England by the names of William Harvey (1578-1658), the discoverer of the blood circulation, and Aselli (1581-1626), the discoverer of the lymph-vessel, and in France of Ambroise Pare (1517-1590), originally a barber, who made the best of his opportunities as a field surgeon and as a consultant being called to distant places. What Pare did as a practical, original surgeon, his contemporary, the skillful Italian anatomist, Vesalius (1513-1564), did for enhancing the knowledge of anatomy, that mainstay of surgery without which conscientious work is impossible. The impulse which these men gave to the progress of surgery is effective and can be felt to this day. The greatest genius of the Englishmen of the eighteenth century was John Hunter (1728-1793), who accomplished as much as an anatomist as by his scientific and practical work as a surgeon. His book on inflammation and wounds is still considered authoritative at present.

ATTEMPTS AT REGULATION OF FEES

In the beginning of the eighteenth century, in our own country, it is interesting to note the methodical attempts at regulation of fees in Virginia, in 1736, surgeons and apothecaries being allowed to charge only one-half as much as a general physician. It is likely that this was the outcome of a tendency of "fee-splitting" between physicians and surgeons.

In 1760, in New York, the first regulation was instituted by law which forbid anyone to practice as a physician or surgeon who had not been approved and examined by special, approved judges. Other states followed suit in rapid succession.

While in the beginning of the nineteenth century French surgery remained predominating, as the names of Dupuytren (1777-1835) and Jean Dominique Larrey (1832-1843), the steady companion of Napoleon I, show, the dividing lines between the nationalities in the middle of this century begin to disappear in the domain of surgery as in all other respects. The means of communication increase with the increasing facilities of travel, and interchange of opinion in congress of medical men and distribution of knowledge through all the world by printed periodicals unites the surgeons everywhere by one common interest.

GREATER DEMANDS MADE

As the population in cities increased, greater demands were made upon surgeons, and greater opportunities were offered in all countries. Medical schools flourished, hospital facilities were increased, trained nursing established as an independent profession, and greater facilities for the manufacture of surgical instruments and apparatus were at hand.

However, what opened to surgery the unprecedented possibilities of its modern perfection were the two events which revolutionized practical surgery completely.

The first is the discovery of anesthetics and their practical use for the prevention of pain in the performance of surgical operations. In 1780 Sir Humphrey Davy had suggested that nitrous oxide gas might probably be used with advantage in surgical operations, but not until 1846, when Dr. Henry J. Bigelow read his paper on "Insensibility During Surgical Operations Produced by Inhalation" before the American Academy of Arts and Sciences, was the first definite account of the method of satisfactory anesthesia in surgical operations made known, and in the following year it was generally used throughout the civilized world. The Dentist Morton of Boston was the first one to ex-

tract painlessly, at the suggestion of his friend, Dr. Jackson, under inhalation of sulphuric ether. In 1849 Simpson, professor of obstetrics in Edinburgh, introduced chloroform into the practice of surgery.

SCIENCE OF BACTERIOLOGY

The other important factor bearing on the development of modern surgery is the advent of the science of bacteriology to which Pasteur's patient studies and meteoric discoveries gave the impulse. The investigators whose names are familiar to everybody, Pasteur, Lister and Koch, have an equal claim to recognition as founders of the new science of bacteriology. It is due to Lister's genius, however, that it made him see the practical possibilities of the visions of Pasteur. Recognizing the destructive qualities of the bacteria as the cause of the delay of wound healing, Lister invented his antiseptic methods, first using carbolic acid as the germ-killing agent. After years of experimenting in his war on putrefaction, he succeeded independently in conquering the most obstinate foe of clean surgery. In 1867, this great English surgeon established his methods in the hospitals of London, the plan being to prevent putrefaction by excluding the entrance of micro-organisms to wounds or by destroying their power, with the least possible injury to the living tissues, if they gained admission.

Marked progress in abdominal and intracranial surgery was the immediate result of anesthesia and antisepsis, because with the two main obstacles to surgery now removed, there seemed to be no more carriers to any operations. Dental surgery became oral surgery and all the sinuses of the head were made accessible to formidable operations. Lives were saved or considerably prolonged by the possibility of extensive tumor operations and cancer became curable under the condition that it is recognized early enough. Improved laboratory methods and the greatly perfected microscope made early diagnosis possible.

DISCOVERY OF X-RAY

In the recognition of many surgical diseases, the discovery of the x-ray by the German physicist Roentgen (1896) has become an indispensable aid. Fascinated as by a miracle, the first observer saw the rhythmic motions of the human heart inside the chest and the bones beneath the muscles. What a relief for the patient with broken bones to be saved the pain of examination by manipulation, how much more exact the treatment of fractures and its results. Again, electric illumination and much improved instruments, going as far as revealing the function of the kidneys through the cystoscope, having cleared the field for the genito-urinary surgeon, made every opening of the human anatomy accessible to the skilled operator. Mechanical technic has harnessed electricity in the service of the surgeon by construction of apparatus for treatment of all the special diseases, and in the carbon arc lamp and the mercury vapor lamp has created devices for heliotherapy which in efficiency rival the sunlight.

In diseases too extensive for surgical attack, light therapy sometimes in competition with roentgen-ray treatment, obtains very favorable results. Regarding the usefulness of the roentgen-rays in their application on malignant tumors the last word has not been spoken, especially not since radium was introduced in 1906 into the practice of surgery. Radium is a rare metal, discovered in 1899 by Madam Curie and her husband. As it is unstable in air, the chloride and bromide salts of radium are used. They emit, besides heat and light, three distinct kinds of radiation. The application of radium concealed in specially constructed tiny containers has frequently produced very remarkable results in cases which were beyond surgical relief, and its power of checking hemorrhage in diseases peculiar to women is all but marvelous.

LOCAL ANESTHETICS

To chemistry also the modern sur-

geon owes gratitude for the gift of local anesthetics, among which novocain is the chief exponent, its use compelling the surgeon to more gently handling the tissues under the knife and saving the patient the risk of shock under operation and the inconvenience and dangers from inhalation anesthesia after operation.

All the technical and scientific attainments of the last thirty years which have made for the progress of surgery have been put to the test by the recent world war. The lessons of previous wars were naturally profited by and applied. Prophylactic vaccination against typhoid fever reduced its incidence to a negligible number compared with former experiences, and preventive serotherapy and subsequent injections of antitetanus serum before attempting surgical interference saved many lives in the early months of the war, makinig the dread disease finally capitulate entirely. When the machine-gun fire threw bullets with mathematical precision in incredible numbers per minute, modern methods of treatment of the wounds inflicted had to be adapted with equal scientific accuracy. The Carrel-Dakin method accomplished this by thorough irrigation of the wound with measured quantities of Dakin's solution, touching every part of the wound and proportioned to needs according to what numbers of bacteria were found in accurate counts taken at stated intervals.

AWARD FOR CANCER RESEARCH

The award of the Sofie A. Nordhoff-Jung Cancer Prize, which has been made for the first time this year, has been presented to Dr. Johannes Febiger of the University of Copenhagen.

Dr. Johannes Fibiger, professor ordinarius in pathological anatomy at the University of Copenhagen, has demonstrated, following repeated experimentation, that parasites play an important role in the formation of certain types of tumors in the proventriculi of rats.

Furthermore, he has succeeded in effecting papillomata and undoubted carcinoma through the parasite nematode. Where others have failed after years of persistent researches, he first met with success in artificially inducing malignant tumors through external irritations and so thrown wide new avenues to future findings. Though the earlier results of Fibiger's work date back a number of years, he unremittingly labored towards an interpretation of the significance of parasitic irritants in malignant tumor formation, likewise of mechanical and chemical irritants. Fibiger and his associates have contributed generously to the literature of cancer production through feeding to rats of oats and the application of tar to their tissues. In this way they have confirmed the successful work of Stahr and Yamagiva.

In a word, Fibiger's advances towards the solution of the problem of the causative irritants productive of cancer are at the same time most comprehensive and most remarkable.

His name will ever appear inscribed on the first page of the History of Cancer Research.

The commission on the award consisted of Professors Borst, Doederlein, v Romberg and Sauerbruch, all of the University of Munich.

NATIONAL COMMITTEE ON MENTAL HYGIENE

Dr. Frankwood E. Williams was re-elected Medical Director of the National Committee for Mental Hygiene at the annual meeting of the Board of Directors, held in New York City, on December 28. The following were elected members of the Executive Committee: Dr. William L. Russell, Medical Director, Bloomingdale Hospital, White Plains, New York; Dr. Walter E. Fernald, Superintendent, Massachusetts School for the Feebleminded, Waverley; Dr. Stephen P. Duggan, Director, Institute of International Education, New York City; Dr. William A. White, Superintendent, St. Elizabeth Hospital, Washington, D. C.; Dr. Charles P. Emerson, Dean of the Medical School, University of Indiana, Indianapolis; Dr. C. Floyd Haviland, Chairman, State Hospital Commission, Albany, New York; Dr. Arthur H. Ruggles, Superintendent, Butler Hospital, Providence, Rhode Island, and Mr. Matthew C. Fleming, attorney, New York City. Dr. William H. Welch, President of the National Committee for Mental Hygiene, presided.

ANTITOXIN PROGRESS

Ever since Behring and Roux gave diphtheria antitoxin to a waiting world, the most progressive biological laboratories have been engaged in reducing to a minimum the inconveniences and uncertainties of antitoxin administration.

The doses given at first were too small, and yet quite large enough in volume. The manufacturers soon succeeded, however, in eliminating useless water from the serum and otherwise concentrating it. Meantime, more accurate methods of assaying it were developed, the U. S. Public Health Service co-operating.

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THE ARIZONA STATE MEDICAL ASSOCIATION

(D. F. Harbridge, Secretary)

In order that your county and state affairs may be properly conducted, it is important that each member make it a point to pay his dues promptly. The State Association dues of ten dollars, together with a complete list of all county members, should be in the office of the state secretary well in advance of March 31, 1924. All delinquents coming in after this date cause an endless amount of unnecessary correspondence in having their names added to the lists forwarded to the American Medical Association.

Dr. George Sampson of Winslow, secretary of the Navajo-Apache Counties Society, on January 18 brought in his full list of membership and dues. Dr. Sampson is one of our most active county secretaries in making prompt annual returns. This has been his custom during the past eight years.

WHAT TO EXPECT

In the editor's report to the Medical and Surgical Association of the Southwest, at El Paso, in December, attention was called to the imperative necessity of thorough organization of the medical forces of the southwest district with the object of cementing friendship with northern Mexico and fostering the commercial and professional relations between that country and the southwest, as distinguished from the Pacific Coast. Attention was called to the impending completion of the railroad connecting Guadalajara with Mexico City, giving direct train service from San Francisco to Mexico City, via Los Angeles, Yuma, Tucson, Nogales, Hermosillo, Guaymas and Guadalajara. For the medical profession of Arizona (especially) and the entire southwest to ignore the opportunities offered by the opening up of this vast empire to the south will be to hand over to southern California all of these opportunities. It was predicted in the report mentioned that Los Angeles was watching and waiting for this opportunity—and this prediction was justified by the New Year edition of the Los Angeles Times, which carried an article entitled, "Guadalajara—Los Angeles' Neighbor." This article very graciously grants to El Paso the districts about Chihuahua and Torreon, stating that "by reason of propinquity and railway connections, Los Angeles has the entire west coast."

The term "neighbor", when used by Los Angeles, never refers to propinquity, but is used to designate an opportunity to be exploited. In the same article Hawaii is spoken of as a "neighbor".

That Arizona is located between California and Mexico will be given as little consideration by the former as it was given in the establishment of the stage line between Los Angeles and El Paso. The fact that these stages had to use the highways of a sister state was not looked on as worthy of consideration, no attempt being made to secure Arizona licenses or permits.

The lesson is written plainly for us to read; if we do not read and act, we will deserve what we get.

TO THE MEMBERS OF THE NEW MEXICO MEDICAL SOCIETY:

At the meeting of the New Mexico Medical Society, held in Albuquerque, N. M., June 19-21, 1923, the following amendment to the Constitution was offered, to lay over to the next meeting, which is to be held in Santa Fe, N. M., on the 27th, 28th and 29th days of May, 1924:

"Resolved, That in the first paragraph of Article XI, of the Constitution, the words "$3.00 per capital per annum" be changed to read $5.00 per capita per annum."

The constitution provides that proposed amendments shall be published in the official journal for two issues preceding the annual meeting at which they are to be voted on.

C. M. YATER,
Secretary.

PHOENIX MEDICAL MEETINGS

With the inauguration of the monthly staff meetings of the Deaconess Hospital, Phoenix will have weekly medical gatherings. The County Society meets on the first and third Saturday evenings; the staff of St. Joseph's Hospital meets on the third Thursday evening; the staff of the Deaconess will meet on the fourth Saturday evening.

It is planned to make the county society gatherings chiefly for scientific papers, and presentation of clinical cases seen in private practice.

The staff meetings will be for the purpose of studying difficult or interesting cases treated in the hospitals—and will be entirely clinical.

Since practically every eligible practitioner of the community will be on the staff of both hospitals, the meetings will all be general so far as attendance is concerned, and visitors in Phoenix will be more than welcome at any of these meetings.

YAVAPAI COUNTY (Ariz.) MEDICAL SOCIETY

The Annual Meeting and Banquet of this Society was held on January 8, at the Yavapai Club. The following officers and committees were selected for the year:

President—Dr. R. H. Thigpen of Jerome.

Vice-President—Dr. John W. Flinn of Prescott.

Secretary-Treasurer — Dr. C. E. Yount of Prescott.

Delegates—Drs. H. T. Southworth (Prescott) and A. D. Wilson (Prescott); alternates, Drs. C. R. K. Swetnam (Prescott) and W. I. Linn (Prescott).

Censors—Drs. A. C. Carlson (Jerome), C. R. K. Swetnam (Prescott) and R. N. Looney (Prescott).

Committee on Public Health and Legislation—Drs. R. N. Looney (Prescott), John W. Flinn (Prescott), H. T. Southworth (Prescott) and J. M. Walsh (Jerome).

DR. LUTHER EMMETT HOLT

Dr. L. Emmett Holt, who died in Peking, China, on January 14, 1924, will perhaps be longest remembered as the author of a book, "The Care and Feeding of Children," which, through twelve editions, has been for twenty-five years an authority in the homes, not only of the United States, but of South America and Europe, and in China and Japan, where it has been invaluable in medical missionary work.

Dr. Holt was born on March 4, 1855, at Webster, N. Y., was graduated from the University of Rochester in 1875, took his master's degree three years later, and, in 1880, was graduated from the College of Physicians and Surgeons of Columbia University. Later, when his work had brought him fame, he received the honorary degrees of LL. D. from Rochester and Sc. D. from Columbia and Brown Universities.

At the time of his death he was physician-in-chief at the Babies' Hospital, member of the Board of Directors and Secretary for the Rockefeller Institute for Medical Research, and Trustee of the University of Rochester. He was a member of the Association of American Physicians, retiring president of the American Pediatric Society and a trustee of the New York Academy of Medicine.

Though nearly seventy years old, he went to China in August, 1923, as special lecturer at the Union Medical College in Peking, an institution maintained by the Rockefeller Foundation. His death is a loss, not only to the nation, but to the world, whose children he made it his mission to save and serve.

EL PASO COUNTY MEDICAL SOCIETY

A regular meeting of the El Paso County Medical Society was held January 7, 1924, at the University Club.

The meeting was called to order by Dr. C. M. Hendricks, Past President, at 8:16 p. m. There were present thirty members and one visitor.

Dr. Hendricks addressed the society on some interesting points that had happened during his administration and stated that one item he wished to dispense with was the fact that the Annual Banquet for 1923 had not been held. He asked the members to pass on this subject at this time. Dr. Rawlings made motion that the banquet be not held, which was seconded by Dr. Leff, and carried.

Dr. Hendricks expressed the hope that the weekly meetings and the Program Committee that were inaugurated during the latter part of his administration would be continued during the coming year. He advocated and strongly recommended the creation of a Publicity Committee, with function to write medical articles in lay language for publication in the daily papers and to co-operate along this line with the editors of the papers, as in this manner much could be done to offset the advertising by the irregular practitioners of various types.

The Secretary-Treasurer's report was then called for and made.

In reference to the financial report and the addition of the weekly meeting, Dr. Hendricks recommended a rearrangement of the funds of the society, to meet the extra expenses.

Dr. Willis W. Waite, President-elect, was then introduced, took the chair, and continued the meeting.

Dr. Waite announced that he had left his written speech at home, but gave an impromptu talk that was very interesting and forward looking. He expressed his appreciation to the members for his election to the presidency, an honor he had not hoped for. Among the points of interest emphasized was that the efficiency of a society increases directly in proportion to the interested activities of its members, and that "we should keep in front of us the following points: The one great fault is carelessness; carefulness is a matter of personal training. We should use the strong points of our associates; we should know our associates better and by knowing them be more willing to use their good points and have them use ours." He referred to the newly formed Pathological Club and their eagerness to work and learn and stated that the society had always available the material and results of their work. He asserted that there is abundant room for two or three more such Pathological or Medical Clubs, of one division or another, and a special opportunity for investigation along pharmacological lines. He emphasized the desirability and importance of making this a medical center—a center, for instance, of tuberculosis, to create the impression on people all over the country that El Paso was a center of study of such work. He referred to the work of standardizing hospitals on the strength of the fact that the standardization statistics show that standardization has reduced death rates and reduced the number of hospital days, all of which means better work, and strongly recommended that we work along the line to make all of our hospitals standardized, to have our city known as a city of 100 per cent standardization. He quoted statistics showing such description of the State of Nevada, although there are but four hospitals in the state, it is 100 per cent standardized.

The next on the program were the papers. Dr. E. B. Rogers read a

paper entitled "Syphilis of the Kidney." Discussion was opened by Major Scott and continued by Drs. Werley, Leigh, Waite and Barrett.

The second paper was presented by Major Fred S. Wright, entitled "Mammoth Hypernephroma." The pathological phase of the work was presented by Major F. E. Gessner. The paper was intensely interesting and there was given in addition to it a most complete history. A specimen was presented, the pathological areas carefully outlined and labeled. Sections were shown under three microscopes. Discussion was entered into by Dr. C. A. Sellaser, a visitor; Major Scott, Major Wright, and Dr. George Turner.

There were no case reports.

The President, Dr. Waite, offered for consideration that the society have a home of its own, three rooms in the First National Bank Building, next to the museum of the Pathological Club, which could be had for $70 per month, with no expense for the removal of partitions, etc., and such other details, for putting them in order for occupancy. The library could be taken to this location and the books placed on shelves surrounding the room.

Dr. Cathcart made motion that a committee be appointed to investigate as to the advisability of making this change, which was seconded by Dr. Werley, and carried.

Announcement of the next program was made by the President, and, as no other business came before the house, the meeting adjourned at 10:12 p. m.

F. O. BARRETT,
Secretary.

MARICOPA COUNTY (Ariz.) MEDICAL SOCIETY

The semi-monthly meeting of this society was held in the lecture room of the Sisters' Hospital on January 5, at 7:30 p. m. There were present Drs. Bailey, Carson, Couch, Gudgel, Holmes, Milloy, Schwartz, Watkins, Wheeler, Wylie, Mills, Smith, Vivian (president) and Phillips (secretary).

Upon motion that an auditing committee be appointed to audit the books for the past year, the chair appointed Dr. H. P. Mills as auditor.

The first paper of the evening was by Dr. Win Wylie, entitled "Discussion of Proposed Act Authorizing the Court to Appoint Medical Experts." At the annual meeting of the Arizona Medical Association in Prescott in 1922, a resolution was adopted directing that a bill be framed and presented to the next legislature providing for the appointment of medical experts by the court. Dr. Wylie's paper contended that such a law would be unfair and unconstitutional. The paper and discussion will be published in an early number of SOUTHWESTERN MEDICINE. It was discussed by Drs. Watkins, Gudgel, Smith, Carson, Holmes, Bailey, Phillips and Schwartz, the discussion being closed by Dr. Wylie.

The second paper of the evening was by Dr. W. A. Schwartz, on the subject of "Septic Thrombophlebitis of the Lateral Sinus Following Suppurative Otitis Media and Mastoiditis, With Report of Four Cases." This paper and discussion will appear in an early number of SOUTHWESTERN MEDICINE. It was discussed by Drs. Watkins, Wylie, Phillips, and closed by Dr. Schwartz.

The matter of the next meeting was introduced for discussion, and Dr. Carson stated that he had not received the desired response to his endeavors to arouse interest in the matter of fee schedules and Secretary Phillips stated that he had not received response to his invitations for speakers on the subject of ethics. Motion was made that we do not hold the meeting for the discussion of ethics and fees; after some discussion this motion was put to vote and lost. The secretary called for more volunteers to discuss various phases of medical ethics.

Motion was made that the next meeting be held at the Professional Women's Club rooms, with dinner at 6:30. This motion prevailed and society adjourned.

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Roentgenologist

EDWIN D. WARD, M.D.
Assistant Medical Director

T. C. CROWELL, M.D.
Pathologist

MARICOPA COUNTY (Ariz.) MEDICAL SOCIETY

(Dr. L. A. W. Burtch, Secretary Protem.)

The regular biweekly meeting of the Maricopa County Medical Society was held the evening of January 19, at the Business and Professional Women's Club rooms, where dinner was served before the regular session. Owing to the late arrival of the president, Dr. Stroud, vice-president, called the craft from labor to refreshment. Dr. Vivian arrived before the food had been consumed and took charge of the meeting, selecting Dr. Burtch to act as secretary protem. A good attendance was out, about forty appearing before the close of the meeting. Among those attending both dinner and meeting afterward were: Drs. Beauchamp, Charvoz, Waddell, Holmes, Tankersley, McCall, Reese, Duncan, Wheeler, Jordan, Shields, Bannister. Goodrich, Sweek, Shelly, Harbridge, McLoone, Phillips, Milloy, Wylie, Brown (O. H.), Neff, Bakes, Felch, Couch, Palmer (C. B.), Dameron, Ellis, Brockway, Stroud, Thomas, McIntyre, Smith (Willard), Carson, Mills, Vivian and Burtch.

The first paper on the program was by Dr. Stroud, and the president called on Dr. Wylie to open the discussion. He opined that the feeling of friendship among members of the profession had considerably improved since his first recollections of the relationship of physicians one to another, which was in the days of his father's practice in a small eastern town, and that his early experiences in Maricopa county had been somewhat along the same lines; at one time he was refused license to practice in this county upon his return from a long vacation in California. For the profession he has only kindly feelings and considers all the profession in the county, with one exception, as friends—and this exception he does not actively and openly condemn. Dr. Wylie is not engaged actively in practice of medicine, but as an illustration of his kindly feelings he is working to his utmost to free a fellow practitioner from an attempt to railroad him to the penitentiary on purely technical grounds.

Dr. Brockway commented on the most excellent paper of Dr. Stroud, which, to his mind, got to the kernel of the matter, and his only criticism would be to cut it somewhat shorter and make it more forcible. Cited the story of one minister's wife saving another minister might be all right if he would only "get religion"; applying it to the profession in that if we would all "get religion"—in other words, live up to the golden rule and forget the petty envies and greed there would be little cause for a code of ethics.

Dr. Reese quoted a notice posted in the office of a friend of his in the east, "The other physicians in this town are my friends; you can't pay your bills in this office by belittling them."

Dr. Woodall says that a physician should be a salesman in that he sells himself; should "know his stuff" and sell on his own merits, not on what the other fellow isn't. Told of recent occurrence of discussion before patient which does not raise any of the profession in the estimation of the public.

Dr. Mary Neff quoted from Osler and was grateful that there had never been for her any harsh criticism from the profession in Maricopa county and agreed that it is extremely poor business to belittle any member of the profession to the laity, as it only serves to lower the dignity of the whole profession.

Dr. Willard Smith, being called on by the president, said:

> "So many Gods; so many creeds,
> So many roads that wind and wind,
> When just the art of being kind
> Is all this old world needs."

Dr. Stroud in closing said that he had been treated very kindly by most of the profession, particularly so by Dr. Wylie, and that he had gone out of his way to treat all in an ethical manner and he was proud of the record made by Dr. Wylie in making it exceedingly unprofitable for the laity to bring malpractice suits in this state. Was well pleased with Dr. Woodall's friendly manner of criticism and with Dr. Mary Neff's keen humanness.

Dr. Carson presented the second paper, and Dr. Wylie opened the discussion of this paper by saying that in his remarks there would be no personal feeling. That to his mind a fee bill would be nonsense. That Dr. Woodall hit the nail on the head when he said it was all a matter of selling personality; and that he considered it a matter of playing straight with patients. Commenting on the loan business of Christy, said it was not so easy as Dr. Carson's paper led one to beieve. His experience with collection agents and agencies was that they are "the bunk". Says that people not qualified to judge of inefficiency; and vigorously condemned the contract system as in operation at laboratories.

Dr. Goodrich stated he did not feel there was any way of regulating fees; that each physician and each patient should be a law unto himself. Also said in a recent interview a young attorney of Phoenix had inquired of him if it would not be possible for the profession to insure him enough income so that he would be able to devote his entire time to collections for physicians.

Dr. McLoone feels that a fee of $50 for obstetric cases is absurdly small; believes in not overcharging the rich, nor undercharging poor; but to charge each patient for fair value of actual work performed. Thinks collectors of little avail; and advises against giving prices to patients over the telephone, as in most cases it is only a case of "shopping".

Dr. Mills ,being called by the chair to defend laboratory contracts, stated that only by the contract method could an efficient labo-

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ratory be made available, and that it resulted in much good by securing to the poor laboratory service that they would otherwise have to do without, many times much to their detriment. That it stimulates having necessary laboratories work done that otherwise would not be done.

Dr. Holmes ardently supported the contract with laboratories on the same grounds. Dr. Felch agrees and says that laboratory contracts are not to be considered "fee splitting".

Dr. Jordan thought laboratory contracts and their beneficial results should be discussed with patients that they may fully understand the advantages.

Dr. Ellis held just the opposite view, thinking it extremely bad business to discuss laboratory methods and fees with patient.

Dr. Bannister thinks laboratory examinations an essential part of routine office work and that patients should all be given this service when required.

Dr. Sweek disagreed with Dr. Wylie on matter of contracts and vigorously defended them as essential to the maintenance of efficient men on laboratory staff, citing the history of the past ten years from the birth of the laboratory to the present time, claiming that by the means of income assured, Phoenix today has laboratory facilities not equaled in any city of the United States.

(Note: At this time, Dr. Burten was called away to attend an emergency case, and further notes of the meeting were not secured.)

ST. JOSEPH'S HOSPITAL STAFF MEETING

(Phoenix, Arizona)

The meeting of the staff of St. Joseph's Hospital of Phoenix, Ariz., held on January 10, was the annual meeting of the organization. The staff members were the guests of the hospital at a dinner served by the Professional and Business Women's Club; thirty-five members of the staff were in attendance. No scientific program was presented, and the social hour being followed by the routine business scheduled for the annual meeting.

Minutes of the last meeting were read and approved. The secretary read a proposed amendment to the constitution providing that no member of the staff would be eligible to election to an office or standing committee, at the annual election, who had not attended seventy-five per cent of the meetings of the staff during the preceding year. This is to be voted on at the next staff meeting.

The chairman, Dr. Wylie, announced that a primary ballot would be taken for the offices of chairman, secretary and five members of the executive committee—any member receiving five votes would be declared nominated. The result of the first ballot was that Dr. Win Wylie was elected chairman, receiving every vote except his own, and Dr. Watkins was also elected secretary by a vote which lacked one of being unanimous. Dr. Willard Smith received a mapority of the votes cast for a place on the Executive Committee, and was declared elected. On the next ballot, Drs. W. A. Schwartz and Dr. Fred Holmes were elected members of the Executive Committee. On the third ballot, the three members receiving the highest votes were Drs. George Goodrich, W. O. Sweek and J. J. McLoone. When Dr. Goodrich asked that his name be dropped, the chair ruled that Drs. Sweek and McLoone were elected to the two remaining places on the Executive Committee by the withdrawal of Dr. Goodrich.

The staff organization for the year 1924 will consist, therefore, of the following:

Chairman—Dr. Win Wylie.

Secretary—Dr. W. Warner Watkins.

Executive Committee—Dr. Willard Smith, Dr. W. A. Schwartz, Dr. Fred Holmes, Dr. W. O. Sweek, Dr. J. J. McLoone.

The meeting adjourned to meet on February 7.

W. WARNER WATKINS, Secretary.

A NEW A. C. S. MONOGRAPH

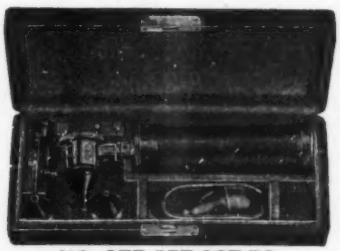
The publication of a new American Chemical Society Monograph is announced by The Chemical Catalog Company of New York. This recent book by Dr. George W. Raiziss, Ph.D., and Joseph L. Gavron, B. S., is entitled "Organic Arsenical Compounds." It is probably the most complete and comprehensive work on this subject that has ever been published.

Dr. Raiziss, Professor of Chemotherapy, Graduate School of Medicine, University of Pennsylvania, is well known for his research work and writings on arsenical compounds. He was the first laboratory worker in the United States to successfully develop American made arsphenamines for use in the treatment of syphilis. Mr. Joseph L. Gavron has been asociated with Dr. Raiziss in literary and laboratory work done in The Dermatological Research Laboratories of Philadelphia.

While this volume of 550 pages covers exhaustively the entire field of arsenicals from a chemical viewpoint, there is much of interest to those physicians particularly interested in the Chemotherapy of the arsphenamines.

NOSTIC ANATOMY.—By Charles B. Slade, M. D., formerly chief of clinic in general medicine, University and Bellevue Hospital Medical College. Third edition. Thoroughly revised; 12 mo. of 179 pages, illustrated. Philadelphia and London. W. B. Saunders Co.

This little book on physical examination is very valuable to the medical student. The illustrations are very good and numerous. The importance of auscultation after cough should be emphasized in the chapter on auscultation. It would be well also to emphasize the importance of comparing the pulse rate after exercise with that while the body is at rest. The chapter on blood pressure is exceptionally good. H. F. G.



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ARIZONA DEACONESS HOSPITAL
(Phoenix, Arizona)

(Dr. H. L. Goss, Secretary of Staff)

A special meeting of the Medical and Surgical Staff of the Arizona Deaconess Hospital was held on January 11. The object of this meeting was to hear a proposed constitution which had been approved by the Medical Council. The following staff members were present: Drs. Drane, Mills, Thayer, Garrison, Little, Watkins, Thomas, Ellis, Goodrich, Couch, Felch, Hicks, Palmer (C. B.), Shupe and Goss.

The chairman, Dr. W. C. Ellis, presided, and the proposed constitution was read; then it was adopted section by section, with certain modifications which were suggested and voted upon. Upon motion of Dr. Garrison, seconded by Dr. Thomas, a clause was inserted providing that all staff members who desired to serve be given places on the standing committees. Another change, providing that the staff quorum be ten members, instead of fifteen as proposed, was adopted. The constitution as a whole was then adopted unanimously. The final constitution and by-laws, as adopted, was as follows:

CONSTITUTION AND BY-LAWS OF THE MEDICAL AND SURGICAL STAFF OF THE ARIZONA DEACONESS HOSPITAL

Article I—Name

The name of this organization shall be the Medical and Surgical Staff of the Arizona Deaconess Hospital.

Article II—Purpose

The purpose for which this staff is organized is to promote the highest standards of medical and surgical practice in this Hospital.

The staff will have no executive powers, but its functions are to be advisory, its rules and decisions being subject to the final approval of the governing board of the Hospital.

In accordance with this purpose, the medical council may adopt rules of practice to govern the handling of patients in the hospital, these rules to be binding on all members of the staff after they are approved by the governing board of the institution.

Article III—Membership

Membership in the Medical and Surgical Staff of the Arizona Deaconess Hospital shall be restricted to those physicians, surgeons and dentists of Maricopa County who agree to conform to the requirements hereinafter named; who are of good moral character and ethical standing; who do not practice the division of fees under any guise whatever; and who are elected to such membership by the staff at a regular meeting.

Article IV—Officers

The officers of the staff shall consist of a president, a secretary, a medical council, and the standing committees of the staff.

The President and Secretary of the staff shall be elected at the annual meeting by a majority vote of the staff members present and voting.

The Medical Council shall consist of the president, the secretary of the staff, who shall be, respectively, the chairman and secretary of the council, the chairman of the standing committees named below, and the superintendent of the hospital.

The standing committees shall be appointed by the president, after the annual meeting, and shall include all staff members desiring to serve. The personnel shall be subject to the approval of the governing board of the hospital before assuming office. The following are the standing committees:

(a) Committee on medical practice.
(b) Committee on surgical practice.
(c) Committee on diagnosis.
(d) Committee on records.
(e) Committee on obstetrics and nurses.

Article V—Duties of Officers and Committees

The **President** of the staff shall organize the service in general and exercise a general oversight over the work done in the hospital, bringing to the attention of the council such matters as he considers merits attention. He shall preside at staff and council meetings, and may with the consent of the council, appoint temporary committees for specific work. He shall be ex-officio member of all standing committees.

Sec. 2. The **Secretary** of the staff shall keep the records of the staff and council meetings; take charge of and keep the files of the staff; send out such notices to the staff or council as may be required; act as chairman of the program committee for the staff meetings, selecting and arranging the material for discussion, after approval of this material by the council.

Sec. 3. The **Medical Council** shall hold regular meetings to discuss the entire work of the hospital; to receive from the committees their suggestions, recommendations and reports; to review the clinical records for criticism or for discussion in the staff meetings. The council may refer matters to the standing committees, to special committees, to the superintendent, or to the staff for consideration or action. Four members of the council shall constitute a quorum for the transaction of business at any regular or called meeting.

Sec. 4. Each of the standing committees shall formulate the rules which are to govern their respective lines of work, these rules to become effective after approval by the council.

Sec. 5. The **Committee on Medical Practices** shall superintend the management of medical cases in the hospital. They may make recommendations to the council regarding medical, sanitary, dietary, nursing or therapeutic equipment or service. With the consent of the council, they may organize the medical work of the hospital into departments. They shall have referred to them all criticisms which come within the province of medical practice.

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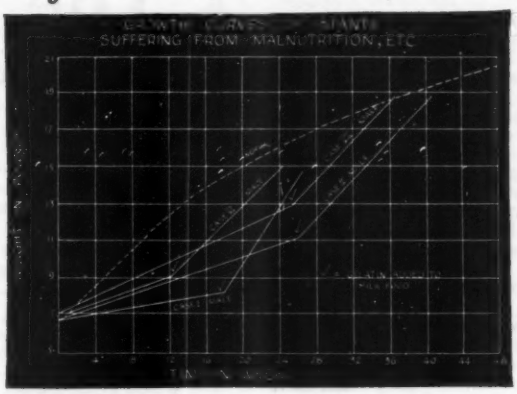

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Sec. 6. The **Committee on Surgical Practice** shall have supervision over the surgical departments of the hospital and matters relating to surgical practice and equipment. They may recommend to the council changes and improvements in the surgical work, and the proper organization of the surgical work into departments. They shall have referred to them any criticisms made regarding surgical practices.

Sec. 7. The **Committee on Diagnosis** shall have supervision over the special diagnostic departments and procedures. They shall outline the routine diagnostic tests which are to be performed on patients, subject to the approval of the council. This committee may refer to the council instances of negligence to make proper use of diagnostic methods available, and shall have referred to it, for advice, criticisms regarding diagnostic procedures.

Sec. 8. The **Committee on Records** shall outline the scheme and form of records which are to be kept on the patients in the hospital in the various departments. They shall have general supervision over the records kept on patients treated in the hospital, and shall see that the same are properly written and filed. They shall bring to the attention of the council failures to keep proper records. They shall have referred to them criticisms and suggestions regarding the proper recording of clinical histories of patients.

Sec. 9. The **Committee on Obstetrics** shall have supervision over the obstetrical department of the hospital and matters relating to obstetrical practice and equipment. They may recommend to the council changes and improvements in the obstetrical work. The council may refer to them any criticisms made regarding the obstetric practice.

Sec. 10. The **Committee on Nurses** shall have general supervision over the training staff; they shall outline the curriculum of lectures and practical training, organize the staff of lecturers, and have general oversight over the training school; they shall advise with the superintendent regarding the housing and discipline of the nurses in training. General complaints regarding the nursing service shall be referred to this committee for advice, though specific cases of such improper service may be investigated by the medical or surgical committees, as the case may demand.

Sec. 11. All actions and recommendations of all committees shall be reported to the medical couhcil for consideration and advice.

Article VI—Meetings

The staff shall meet monthly, on the fourth Saturday evening, for the purpose of discussing questions which may be referred by the council, or to discuss clinical cases for instruction and guidance in the betterment of the medical and surgical service in the hospital, which may be referred to it by the council, or to discuss clinical cases for instruction and guidance in the betterment of the medical and surgical work of the hospital.

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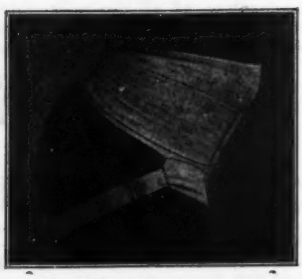

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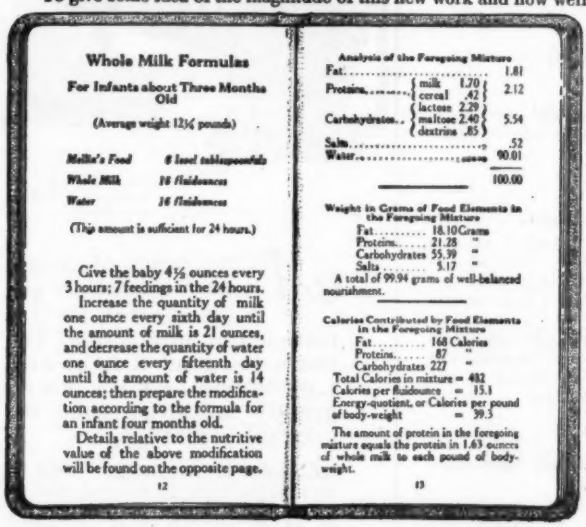

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For Infants about Three Months Old

(Average weight 12¼ pounds)

Mellin's Food	*6 level tablespoonfuls*
Whole Milk	*16 fluidounces*
Water	*16 fluidounces*

(This amount is sufficient for 24 hours.)

Give the baby 4½ ounces every 3 hours; 7 feedings in the 24 hours.

Increase the quantity of milk one ounce every sixth day until the amount of milk is 21 ounces, and decrease the quantity of water one ounce every fifteenth day until the amount of water is 14 ounces; then prepare the modification according to the formula for an infant four months old.

Details relative to the nutritive value of the above modification will be found on the opposite page.

12

Analysis of the Foregoing Mixture

Fat			1.81
Proteins	milk 1.70	cereal .42	2.12
Carbohydrates	lactose 2.29	maltose 2.40	dextrins .85	5.54
Salts			.52
Water			90.01
			100.00

Weight in Grams of Food Elements in the Foregoing Mixture

Fat	18.10 Grams
Proteins	21.25 "
Carbohydrates	55.39 "
Salts	5.17 "

A total of 99.94 grams of well-balanced nourishment.

Calories Contributed by Food Elements in the Foregoing Mixture

Fat	168 Calories
Proteins	87 "
Carbohydrates	227 "
Total Calories in mixture	= 482
Calories per fluidounce	= 15.1
Energy-quotient, or Calories per pound of body-weight	= 39.5

The amount of protein in the foregoing mixture equals the protein in 1.63 ounces of whole milk to each pound of body-weight.

13

Special formulas calculated to meet conditions other than normal, with suggestions for their practical application, broaden the scope of the work, which in its entirety marks a distinct advance toward a better understanding of infants' nutrition.

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among nursing mothers who lacks sufficient quantity of milk? Whose quality of milk is by no means rich enough in vital food elements to properly nourish her babe?

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The annual meeting of the staff shall be the regular October meeting of each year.

Ten members of the staff shall constitute a quorum at any regular or called meeting.

Special meetings of the staff may be called upon order of the Medical Council.

The order of business at regular meetings shall be:

1. Minutes of last meeting.
2. Reports of officers and committees.
3. Unfinished business.
4. New business.
5. Election of officers (annual meeting).
6. Suggestions for the good of the hospital service.
7. Clinical program.
8. Adjournment.

Article VIII—Amendments

This constitution may be amended at any regular meeting by a two-thirds vote of the staff members present, and voting, provided the proposed amendment has been read at the preceding regular meeting.

This constitution and any amendment altering the rules of practice in the hospital are to be approved by the governing board of the hospital before becoming effective.

BY-LAWS

Article I. The staff shall be an open staff in all its departments.

Article II. In order to conform to the requirements for all Class A Hospitals, the members of the staff hereby agree to practice according to the following principles:

"I hereby declare that during such time as I consider myself eligible to the privileges of THE ARIZONA DEACONESS HOSPITAL, I shall conform to the principle not to engage in the practice of division of fees under any guise whatever. By this principle, I understand that I am not to collect fees for others referring patients to me, nor to permit others to collect fees for me, nor to make joint fees with physicians or surgeons referring patients to me for operation or consultation, nor knowingly to permit any agent or associate of mine to do so."

The hospital superintendent, Mr. Bowman, asked the opinion of the staff as to the advisability of taking tuberculosis patients into the hospital. Following a short discussion, the opinion of the staff was that tuberculosis patients must, of necessity, be accepted, if they applied for admission.

The meeting adjourned to meet the last Saturday in January.

January 26, 1924.

The first regular staff meeting of the Arizona Deaconess Hospital was held in the Directors' Room of the hospital, after a 6:30 dinner in the dining room of the institution. About twenty-five members of the staff were present. Meeting was called to order at 7:30 by the staff chairman, Dr. W. C. Ellis. In the absence of the secretary (Dr. Goss), Dr. I. L. Garrison was asked to serve in that

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capacity. The minutes of the called meeting of January 11 were read and approved.

Dr. Goodrich, chairman of the Surgical Committee, asked that all surgeons hand in their standing orders for the guidance of the nursing staff.

The first clinical case was presented by Dr. C. B. Palmer. Man, age 81, malaria at 20, miner most of his life; three years ago was struck by a log which crushed his hip, and he has had to be catheterized twice a day since. On January 1 began to have bad pain in bladder, requiring catheterization several times a day; has been treated in California and elsewhere by injections of ten per cent argyrol. Urine is alkaline ,some albumen and much pus.

Physical examination shows double cataract, chest normal, arteries somewhat hardened, some cardiac weakness; has been using soft rubber catheter; inserted metal catheter and found stone; residual urine four ounces, prostate much enlarged; intense pain and much irritation at neck of bladder. Decided to remove stone; could not stand to be cystoscoped and have stone removed through ureter, so it was done under local anesthesia, using two per cent novocain. There was no pain until bladder wall was reached; on account of infection did not anesthetize bladder; decided to attend to the prostate at second stage. Bladder was badly infected and full of pus. After operation there was some sloughing off of superficial tissues, due to extreme age. At this time pus has almost entirely disappeared from the urine and the surprising result is that the enlarged prostate has subsided and is now normal size.

Dr. Goodrich stated that he thought Dr. Palmer used very good discretion in the operation and in the anesthesia. Sacral anesthesia is also a very good procedure in such cases; there may be some temporary paralysis, but this will clear up. Prostate can be easily removed under local, by injecting the mucous membrane after entering the bladder. Bladder stones may form very much more quickly and readily than is commonly believed.

In confirming the last statement, Dr. Smith recalled an old man from whom the prostate was removed and retention catheter placed in for seven days. At the end of this time there was considerable difficulty in removing the catheter because of a stony concretion which had formed on the end of it; this concretion, which was the size of a pullet egg, had formed in seven days, and bladder stones, given a nidus to form around, can develop just as rapidly.

In closing discussion, Dr. Palmer stated that he did not know how long the patient had the stone; in diagnosing stones, it is unusually considered that the methods in order of certainty are (1) cystoscope, (2) sound, and (3) x-ray. The acute symptoms had developed only ten days before, due to irritation of the stone; the most essential things in such a case is to secure drainage

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and use conservatism. Patients 81 years old do not recover if too much is done.

Dr. Carson did not think that methods of anesthesia were fairly compared; believes that pneumonia will occur as frequently after local as after general anesthesia. In considering whether general anesthesia should be used in this particular case, we must compare the least harmful general anesthesia (which is nitrous oxide and oxygen) with novocain. Was a little surprised at the use of two per cent novocain, when one-half per cent will do the work. Patients will have to be individualized and the anesthetic used for which the surgeon is best fitted. Having been operated under both methods, would prefer nitrous-oxide as a personal preference.

Dr. Felch presented the second case, which was an injury of the leg, resulting in gangrene. Patient was a Mexican boy, 14 years old, whose foot had been run over and crushed by a heavy wagon. The tibia and fibula were fractured just above the ankle; after being in the Southside Hospital for several days, gangrene developed in the foot, and patient was sent to Phoenix for operation. On entrance to the Deaconess Hospital on December 26, there was dry gangrene of the foot, and amputation was done three inches below the knee. Although the arterial trunks bled freely, gangrene started in again after a few days, and amputation was done at the middle of the thigh under spinal anesthesia; has had very little drainage and very little pain.

Dr. Greer, who saw the case incidentally, had the impression that there had been some injury in the neighborhood of the knee, injuring the popliteal vessels. Dr. Felch had not found evidence of injury about the knee at time case was seen by him.

Dr. Watkins recalled a case, sent for x-ray examination several years ago, where there had been a dislocation at the knee, which was reduced. At time of x-ray, there was no visible bone or joint injury, but the popliteal vessels had been injured so that thrombosis occurred and gangrene set in, forcing amputation at the middle of thigh.

Dr. Stroud recalled a case of knee dislocation from fall of log. On the fourth day, gangrene threatened at the ankle; when operated there was a shell of bone torn off the tibia which had injured the vessel.

Dr. McIntyre stated that it had been his advice that the amputation be done below the knee, as he thought there would be better chance for good function with artificial limb.

Dr. Smith stated that the artificial limb manufacturers prefer a thigh stump to a leg stump, on account of the greater protection given the bone by the soft tissues; below the knee, there is a conical, painful stump, with bone very near the surface. Knee will lose its function after a time, anyway.

Dr. Felch stated that he has one patient with two artificial legs attached to leg stumps, and only a very close observer could tell that he has cork legs; the harness does not go above the pelvis.

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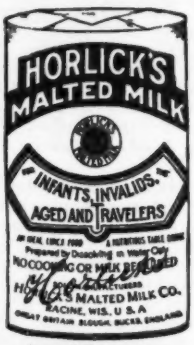

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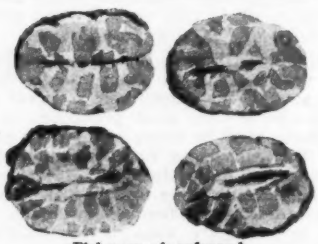

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Dr. Stroud reported the third case, which was under the observation of Dr. McCall. Ventral hernia had been diagnosed, occurring in an appendectomy wound. There was a large ovoid mass below McBurney's point, size of a small football. Fibroid had been diagnosed at one time. Patient had the facies of the acute abdomen. Under anesthesia at the hospital, reduction of hernia was attempted, but failed, so operation was undertaken. Through incision above the old scar, came down to the root of the omentum, which had come through the vent. Part of the strangulated intestines looked very black and it was a question whether they would recover; under hot towels, they recovered sufficiently that it was decided not to amputate. Recovery has been uneventful.

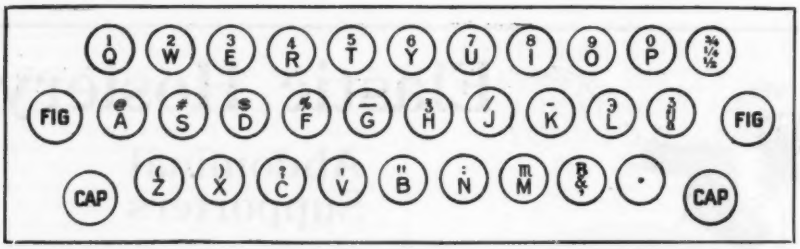
Dr. Shupe stated that he has always found fecal vomiting a prominent symptom in bowel obstruction. Dr. Stroud stated that this is usual, but in this case there had been little vomiting, because reverse peristalsis had not yet started.

ABSTRACTS FROM CURRENT LITERATURE

X-Ray Therapy of the Thyroid Gland. By John G. Williams, M. D., Brooklyn, N. Y. New York Medical Journal and Medical Record, October 17, 1923. P. 480.

Classify goitres as simple, cystic, colloidal, adenoma, exophthalmic and malignant. Of these the adenomata with hyperthyroid symptoms, the exophthmalmic and the malignant are suitable for x-ray therapy.

The author reviews the reports of a number of x-ray workers, including Halstead, Pfahler and Zulick, Grier, Lichty, Holmes and Merrill, Tyler, Soiland, Allison, Beard and McKinley, Seymour, Story. He quotes Means and Aub as reporting the largest series of cases, accompanied by careful metabolic studies, as compared with parallel cases treated surgically; the conclusions of these latter writers were that (1) Results were equally good with x-rays or surgery after two or three years; (2) after surgery the metabolism shows a rapid preliminary fall, followed by a secondary rise, while with x-ray there is a gradual progressive fall; (3) in securing the same results with surgery or x-rays a lesser rest factor is necessary with x-ray treatment; with x-rays there is no mortality; (4) patients treated surgically do better and the risk of operation is less if they have previously had their thyroid and thymus glands irradiated; (5) risk of operation is greater and need for preoperative x-ray treatment is greater in cases with a very high metabolism and moderate tachycardia than in those with extreme tachycardia and moderate metabolism elevation; (6) the safest program for the treatment of exophthalmic goitre as a whole is the roentgen irradiation of the thyroid and thymus glands in all cases, with surgery re-



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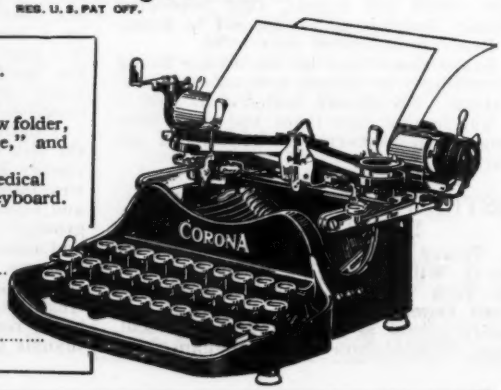

served for those who do not do well; (7) surgery is contraindicated in patients whose metabolism is rising in spite of complete rest in bed and also in patients with moderate tachycardia and great metabolism increase, except when they have previously had thyroid and thymus glands radiated by x-ray.

The opposing views of C. H. Mayo and Chile are quoted and discussed.

Experiences With Radium in the Treatment of Certain Fibromas and Metrorrhagias. By A. Stern, M. D., Sioux Falls, S. D. The Journal-Lancet, vol. xliii, 466 (September. 1923).

The author quotes Kelly, who said that "he who will give his patients the same consideration he would his wife and sisters will put radium first in the treatment of fibromas."

Neither radium nor irradiation can be used exclusively, if the best interests of the patients are to be served.

(1) Radium is indicated and surgery contraindicated in essential hemorrhage, including fibrosis, hyperplastic endometritis, and any hemorrhage not due to purpura hemorrhagica; in fibromas of any size where complications exist that make surgery extra hazardous, such as severe anemia, chronic myocarditis, hypertension, obesity, valvular heart lesions.

(2) Cases in which radium or surgery may be used, with radium preferred, include uncomplicated cases of fibromas in women over 38, where the tumors are not above medium sized (not reaching above the umbilicus).

(3) Cases in which radium or surgery may be used, but surgery is preferred, include fibromas in women under 38, provided the operation is a myomectomy; large fibromas reaching above the navel at any age; submucous tumors hanging in the uterine cavity or protruding from the cervix; fibromas complicated by cancer of the uterine body; toxic myoma.

(4) Surgery is indicated and radium contraindicated in degenerating myoma; myoma complicated with other surgical conditions requiring laparotomy, such as appendicitis, ovarian cyst, gallstones; in inflammatory diseases of the adnexa.

X-Ray Therapy in Hyperthyroidism. By H. Kennon Dunham, M. D., Cincinnati, Ohio. The Ohio State Med. Jour., xix, 713.

This paper, said to be the author's first paper on this subject, represents the conclusions of twenty years of careful, conscientious work and observation. He comments favorably on Richardson's article in the March, 1923, number of the Jour. A. M. A., as showing a firm grasp of the pathological and clinical side of the subject and an understanding of the ends at which treatment should be aimed; the author dissents from the surgical aspect of the treatment.

For the consideration of treatment, goitre is divided into two groups: (1) The large non-toxic goitres, which are not relieved by x-ray treatment, but demand surgery, and (2) the toxic group without pressume symptoms, which can be relieved by x-ray treatment. Where there are mixtures of the two types, x-ray will relieve the toxicity, but not the tumor. The battle ground between surgery and x-ray is over the cases in which the tumor is not bothering the patient, but in which there are definite toxic symptoms due to increase of the gland function, and recognized by rapid pulse, tremor, a psychosis in which fear predominates, loss of weight, profuse perspiration, and increased basal metabolic rate. Such cases can best be treated by the roentgen ray.

Treatments of today are rest and time, medical, surgical and x-ray.

The author commends the honesty of Richardson, as contrasted with that of some other surgeons. Richardson states, referring to operation following the use of the x-ray, "in these cases there has been no appreciable increase in difficulty of operation. The gland has not been adherent to the anterior muscles. The only change I have noted has been a somewhat firmer consistency of the gland, and possibly a slight increase in fixation posteriorly. The increased operative difficulty has been no more than after preliminary ligation."

A diagnosis is the first and most important factor in the treatment of goitre. Any man may have fine statistics if he will treat cases with metabolic rates already within normal limits.

The x-ray can be used to destroy the glandular tissue of the thyroid gradually and under constant control and, when compared with the guesswork removal of glandular substance by surgery, is like preparing a piece of wood by using an axe or shaping it with a plane.

Treatment should extend over a long period of time and the patient should be under constant observation, with every factor of the case treated. Results can be predicted, but not the time in which they can be secured.

Aside from the removal of the tumor mass, exophthalmic goitre and hyperthyroidism can be better, more surely and more safely controlled by the proper use of x-ray than by any surgical operation known today. The only lesions treated so satisfactorily are carbuncle, fibroid of the uterus and tuberculous glands.

Cancer of the Breast: Biological Considerations in Radiotherapy. By M. J. Sittenfield, M. ., New York. New York Med. Jour. and Med. Record, October 17, 1923, p. 487.

Neither surgeon nor radiotherapist should attempt to treat cancer without a thorough knowledge of the behavior of malignant tumor, or a familiarity with the anatomical spread of the disease. Though until we know something definite about the biological laws that cause or are responsible for tissue over-

growth and tumor formation, we shall be at a loss to understand the various phases of malignancy. In one type of carcinomata, the pathological, biological and clinical picture is quite separate and distinct from carcinomata of another group. For example, tumors about the face are almost benign in their behavior in contrast with carcinomata of the tongue, breast or stomach. Similar striking differences are noted in tumors of the cervix and those of the fundus of the uterus.

Similar degrees of malignancy are met with in breast tumors. A mammary tumor may occur as a localized growth, stationary for a long time, or growing very slowly without attempt at metastasis, suddenly flaring up and metastasizing into the neighboring lymph nodes. In a second group, the tumor starts locally in the breast, spreading more or less rapidly in various directions, either by lymphatics into the axillary or supraclavicular regions or by the blood stream to distant parts. In a third group, in which malignant degeneration develops at more than one area in the same breast, the different foci coalescing to form one mass. There is an uncommon type in which malignancy develops in both breasts.

The therapeutic indications will vary with the type of tumor. In the first group of purely local tumor without axillary involvement, radical surgery will be effective.

In the second group, with involvement of axillary lymph nodes, surgical results have been disappointing, though surgery alone has shown apparent cures; radiotherapy has also shown some very encouraging results, so that an intelligent combination of the two methods would seem to be a logical plan.

The important physical and biological consideration is to administer an efficient uniform dose of radiation to destroy or annihilate all malignant disease throughout. How this is to be accomplished will depend on the personal equation of the radiotherapist. He must inform himself of the exact depth of the lesion from the surface of the skin, and must know in what direction it is likely to spread or disseminate. The dose must be carefully calculated by accurate physical measurements, in order to administer with precision an even and homogeneous radiation to the tumor itself.

Insufficient emphasis has heretofore been laid on maintaining the general constitutional well-being of the patient. The individual with the lesion must be taken into consideration as to her physical state, her power to react to intensive radiation. While radiation as we know it today is no panacea for cancer, radiation intelligently combined with surgery in the form of preoperative raying followed by radical surgery, and intensive postoperative radiation, will effect a favorable result in many so-called hopeless cases.

Cancer of the Uterus. By Verne C. Hunt, M. D., Mayo Clinic, Rochester, Minn. Journal-Lancet, xliii, 566 (Nov. 15. 1923).

In a series of 885 cases of cancer of the uterus observed between 1910 and 1919, 73.3 per cent were in the cervix and 29.7 per cent in the uterus. As a rule, cervical cancer is the most malignant, involves adjacent structuers early and tends to recur; cancer of the body tends to remain localized, to metastasize late and does not tend to recur. While cancer of the body is attended with better results than cancer of the cervix, the results bear a direct relation to the degree of malignancy based on the cell differentiation described by Broders.

Cancer of the body is usually operable by abdominal hysterectomy. If inoperable, intrauterine radium is used as a palliative.

The present status of treatment of cancer of the cervix at the Mayo Clinic is as follows: (1) For early cancer confined to the canal, abdominal hysterectomy, or, in the presence of prolapse, vaginal hysterectomy, without preliminary radiation; (2) if entire cervix is involved, radiation is used preliminary to hysterectomy; (3) in inoperable cases, radium alone is used. All cases that have been subjected to hysterectomy have postoperative radiation and postoperative local recurrences have radium.

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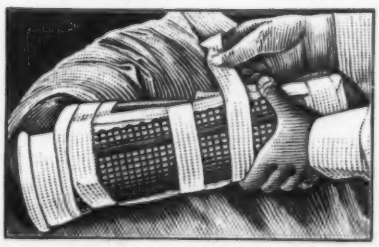

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Shaped by fingers to fit any part, and so are readily adaptable as either permanent or temporary dressings for all kinds of fractures and sprains. Immobilize without interference with the circulation. Brand new Army surplus. Selling for less than half price while they last. Order now if you would avoid paying more later.
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Neo-Silvol is silver iodide in colloidal form. The "Neo" applies to the color, for Neo-Silvol makes a milky, opalescent solution, in contradistinction to the brownness of the ordinary silver antiseptics.

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DR. EVELYN F. FRISBIE of Albuquerque entertained the Bernalillo County Medical Society at her home on the evening of January 2. Appropriate drinks and refreshments were served during the evening, and all members of the society are very grateful to Dr. Frisbie for the pleasant evening at her home.

MRS. L. S. PETERS, wife of Dr. L. S. Peters of Albuquerque, was recently called to Minneapolis on account of the serious illness of her mother. Since her arrival in Minneapolis she reports the condition of her mother as much improved.

MRS. H. L. HUST, wife of Dr. R. L. Hust of Albuquerque, was operated on recently. We are glad to report that she is rapidly recovering and is expected to be home within a few days.

DR. L. S. HEMMINGS of Albuquerque, who was confined to the hospital with typhoid fever last fall, is back on the job.

DR. E. T. LASSETER of Albuquerque recently spent several weeks in Chicago in postgraduate work.

DR. J. J. BERGMANS of Taos, N. M., was in Roswell on January 29, taking the examination for promotion in the Medical Reserve Corps. While here he visited the Chaves County Medical Society and was induced by the secretary of the New Mexico Medical Society to take out a membership at large in that society.

DR. H. J. ABERNATHY of Hot Springs, N. M., died on December 8, the cause of death being acute dilatation of the heart. Dr. Abernathy was born in Murphreysboro, Tenn., on November 13, 1856, and graduated from the Nashville Medical College in 1878, when he was only twenty-two years of age, and has practiced the profession ever since, being an honored member of the profession. He came to New Mexico in 1884.

Thousands

of physicians have found S.M.A. helpful in their problem of feeding infants deprived of breast milk, since **most infants do exceedingly well on it.**

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In clinical trials it has not produced toxic reactions.

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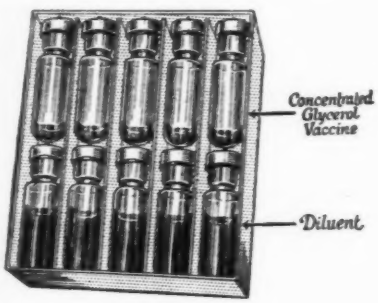

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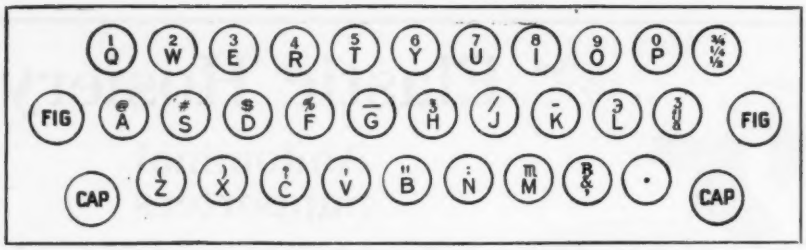

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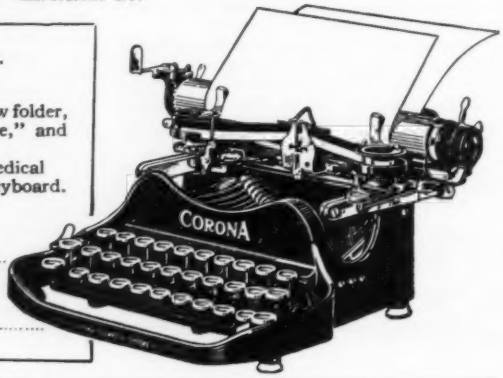

served for those who do not do well; (7) surgery is contraindicated in patients whose metabolism is rising in spite of complete rest in bed and also in patients with moderate tachycardia and great metabolism increase, except when they have previously had thyroid and thymus glands radiated by x-ray.

The opposing views of C. H. Mayo and Chile are quoted and discussed.

Experiences With Radium in the Treatment of Certain Fibromas and Metrorrhagias. By A. Stern, M. D., Sioux Falls, S. D. The Journal-Lancet, vol. xliii, 466 (September. 1923).

The author quotes Kelly, who said that "he who will give his patients the same consideration he would his wife and sisters will put radium first in the treatment of fibromas."

Neither radium nor irradiation can be used exclusively, if the best interests of the patients are to be served.

(1) Radium is indicated and surgery contraindicated in essential hemorrhage, including fibrosis, hyperplastic endometritis, and any hemorrhage not due to purpura hemorrhagica; in fibromas of any size where complications exist that make surgery extra hazardous, such as severe anemia, chronic myocarditis, hypertension, obesity, valvular heart lesions.

(2) Cases in which radium or surgery may be used, with radium preferred, include uncomplicated cases of fibromas in women over 38, where the tumors are not above medium sized (not reaching above the umbilicus).

(3) Cases in which radium or surgery may be used, but surgery is preferred, include fibromas in women under 38, provided the operation is a myomectomy; large fibromas reaching above the navel at any age; submucous tumors hanging in the uterine cavity or protruding from the cervix; fibromas complicated by cancer of the uterine body; toxic myoma.

(4) Surgery is indicated and radium contraindicated in degenerating myoma; myoma complicated with other surgical conditions requiring laparotomy, such as appendicitis, ovarian cyst, gallstones; in inflammatory diseases of the adnexa.

X-Ray Therapy in Hyperthyroidism. By H. Kennon Dunham, M. D., Cincinnati, Ohio. The Ohio State Med. Jour., xix, 713.

This paper, said to be the author's first paper on this subject, represents the conclusions of twenty years of careful, conscientious work and observation. He comments favorably on Richardson's article in the March, 1923, number of the Jour. A. M. A., as showing a firm grasp of the pathological and clinical side of the subject and an understanding of the ends at which treatment should be aimed; the author dissents from the surgical aspect of the treatment.

For the consideration of treatment, goitre is divided into two groups: (1) The large non-toxic goitres, which are not relieved by x-ray treatment, but demand surgery, and (2) the toxic group without pressume symptoms, which can be relieved by x-ray treatment. Where there are mixtures of the two types, x-ray will relieve the toxicity, but not the tumor. The battle ground between surgery and x-ray is over the cases in which the tumor is not bothering the patient, but in which there are definite toxic symptoms due to increase of the gland function, and recognized by rapid pulse, tremor, a psychosis in which fear predominates, loss of weight, profuse perspiration, and increased basal metabolic rate. Such cases can best be treated by the roentgen ray.

Treatments of today are rest and time, medical, surgical and x-ray.

The author commends the honesty of Richardson, as contrasted with that of some other surgeons. Richardson states, referring to operation following the use of the x-ray, "in these cases there has been no appreciable increase in difficulty of operation. The gland has not been adherent to the anterior muscles. The only change I have noted has been a somewhat firmer consistency of the gland, and possibly a slight increase in fixation posteriorly. The increased operative difficulty has been no more than after preliminary ligation."

A diagnosis is the first and most important factor in the treatment of goitre. Any man may have fine statistics if he will treat cases with metabolic rates already within normal limits.

The x-ray can be used to destroy the glandular tissue of the thyroid gradually and under constant control and, when compared with the guesswork removal of glandular substance by surgery, is like preparing a piece of wood by using an axe or shaping it with a plane.

Treatment should extend over a long period of time and the patient should be under constant observation, with every factor of the case treated. Results can be predicted, but not the time in which they can be secured.

Aside from the removal of the tumor mass, exophthalmic goitre and hyperthyroidism can be better, more surely and more safely controlled by the proper use of x-ray than by any surgical operation known today. The only lesions treated so satisfactorily are carbuncle, fibroid of the uterus and tuberculous glands.

Cancer of the Breast: Biological Considerations in Radiotherapy. By M. J. Sittenfield, M. ., New York. New York Med. Jour. and Med. Record, October 17, 1923, p. 487.

Neither surgeon nor radiotherapist should attempt to treat cancer without a thorough knowledge of the behavior of malignant tumor, or a familiarity with the anatomical spread of the disease. Though until we know something definite about the biological laws that cause or are responsible for tissue over-

growth and tumor formation, we shall be at a loss to understand the various phases of malignancy. In one type of carcinomata, the pathological, biological and clinical picture is quite separate and distinct from carcinomata of another group. For example, tumors about the face are almost benign in their behavior in contrast with carcinomata of the tongue, breast or stomach. Similar striking differences are noted in tumors of the cervix and those of the fundus of the uterus.

Similar degrees of malignancy are met with in breast tumors. A mammary tumor may occur as a localized growth, stationary for a long time, or growing very slowly without attempt at metastasis, suddenly flaring up and metastasizing into the neighboring lymph nodes. In a second group, the tumor starts locally in the breast, spreading more or less rapidly in various directions, either by lymphatics into the axillary or supraclavicular regions or by the blood stream to distant parts. In a third group, in which malignant degeneration develops at more than one area in the same breast, the different foci coalescing to form one mass. There is an uncommon type in which malignancy develops in both breasts.

The therapeutic indications will vary with the type of tumor. In the first group of purely local tumor without axillary involvement, radical surgery will be effective.

In the second group, with involvement of axillary lymph nodes, surgical results have been disappointing, though surgery alone has shown apparent cures; radiotherapy has also shown some very encouraging results, so that an intelligent combination of the two methods would seem to be a logical plan.

The important physical and biological consideration is to administer an efficient uniform dose of radiation to destroy or annihilate all malignant disease throughout. How this is to be accomplished will depend on the personal equation of the radiotherapist. He must inform himself of the exact depth of the lesion from the surface of the skin, and must know in what direction it is likely to spread or disseminate. The dose must be carefully calculated by accurate physical measurements, in order to administer with precision an even and homogeneous radiation to the tumor itself.

Insufficient emphasis has heretofore been laid on maintaining the general constitutional well-being of the patient. The individual with the lesion must be taken into consideration as to her physical state, her power to react to intensive radiation. While radiation as we know it today is no panacea for cancer, radiation intelligently combined with surgery in the form of preoperative raying followed by radical surgery, and intensive postoperative radiation, will effect a favorable result in many so-called hopeless cases.

Cancer of the Uterus. By Verne C. Hunt, M. D., Mayo Clinic, Rochester, Minn. Journal-Lancet, xliii, 566 (Nov. 15. 1923).

In a series of 885 cases of cancer of the uterus observed between 1910 and 1919, 73.3 per cent were in the cervix and 29.7 per cent in the uterus. As a rule, cervical cancer is the most malignant, involves adjacent structuers early and tends to recur; cancer of the body tends to remain localized, to metastasize late and does not tend to recur. While cancer of the body is attended with better results than cancer of the cervix, the results bear a direct relation to the degree of malignancy based on the cell differentiation described by Broders.

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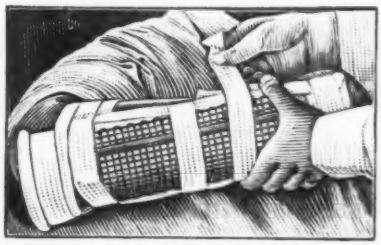

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DR. B. B. MOEUR of Tempe, who has been sojourning in Prescott for several months, has returned home and resumed his practice. Dr. Moore went to Prescott several months ago, accompanying his son, John, who developed tuberculosis after graduating in medicine. Dr. John's progress has been so satisfactory in the mile high city that "B. B." feels satisfied to leave him there under Dr. Flinn's care.

NEW MEXICO NEWS ITEMS

DR. EVELYN F. FRISBIE of Albuquerque entertained the Bernalillo County Medical Society at her home on the evening of January 2. Appropriate drinks and refreshments were served during the evening, and all members of the society are very grateful to Dr. Frisbie for the pleasant evening at her home.

MRS. L. S. PETERS, wife of Dr. L. S. Peters of Albuquerque, was recently called to Minneapolis on account of the serious illness of her mother. Since her arrival in Minneapolis she reports the condition of her mother as much improved.

MRS. H. L. HUST, wife of Dr. R. L. Hust of Albuquerque, was operated on recently. We are glad to report that she is rapidly recovering and is expected to be home within a few days.

DR. L. S. HEMMINGS of Albuquerque, who was confined to the hospital with typhoid fever last fall, is back on the job.

DR. E. T. LASSETER of Albuquerque recently spent several weeks in Chicago in postgraduate work.

DR. J. J. BERGMANS of Taos, N. M., was in Roswell on January 29, taking the examination for promotion in the Medical Reserve Corps. While here he visited the Chaves County Medical Society and was induced by the secretary of the New Mexico Medical Society to take out a membership at large in that society.

DR. H. J. ABERNATHY of Hot Springs, N. M., died on December 8, the cause of death being acute dilatation of the heart. Dr. Abernathy was born in Murphreysboro, Tenn., on November 13, 1856, and graduated from the Nashville Medical College in 1878, when he was only twenty-two years of age, and has practiced the profession ever since, being an honored member of the profession. He came to New Mexico in 1884.